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# Adaptation of rural livelihoods to structural and climatic changes in Western Mongolia

An analysis of the development potentials of horticultural production and tourism as income sources in Khovd and Uvs Province

Camilo Vargas Koch, Wiebke Beushausen, Mengina Gilli, Simon Schoening, Lukas Schreiner, Jana Zotschew



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## Seminar für Ländliche Entwicklung | Centre for Rural Development

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Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

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## Preface

For 58 years, the Centre for Rural Development (SLE, Seminar für Ländliche Entwicklung), Humboldt-Universität zu Berlin, has trained young professionals in the field of German and international development cooperation.

Three-month empirical and application-oriented research projects conducted on behalf of German or international development agencies form an integrated part of the one-year postgraduate course. In interdisciplinary teams and with the guidance of experienced team leaders, young professionals carry out assignments on innovative topics, providing consultancy support to the commissioning organisations while involving a diverse range of actors from household to national levels in the process. The outputs of this applied research directly contribute to solving specific development problems.

The studies are mostly linked to rural development themes and have a socio-economic focus, such as improvement of agricultural livelihoods or regimes for sustainable management of natural resources. The host countries are mainly developing or transforming countries, but also fragile states. In the latter, themes such as disaster prevention, peace building, and relief are examined. Some studies develop new methodologies, published in handbooks or guidelines. Further priorities are evaluations, impact analysis and participatory planning. In the future, however, studies may also take place in the Global North, since the Sustainable Development Goals (SDGs) are a global concern.

SLE has carried out more than two hundred consulting projects in more than ninety countries and regularly publishes project results in this series. In 2019, SLE teams completed studies in Togo, Benin, SADC, Rwanda, Uganda and Mongolia.

The present study analyses the potential benefits and challenges of advancing the tourism and horticultural sectors in Uvs and Khovd Aimag (province) in Western Mongolia, and was conducted in cooperation with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The report is also downloadable from [www.sle-berlin.de](http://www.sle-berlin.de).

We wish you a stimulating read.

Prof. Dr. Bernhard Grimm  
Dean  
Faculty of Life Sciences  
Humboldt-Universität zu Berlin

Prof. Dr. Markus Hanisch  
Director  
Centre for Rural Development (SLE)  
Humboldt-Universität zu Berlin



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Furthermore, we cordially thank Dr. Kathi Kränert from the Potsdam Institute for Climate Impact Research (PIK) for sharing her expertise and relevant documents with us. We hope to return this favor by providing some aspects in this study which are of interest to your work, too.

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Finally, we feel deeply grateful for the excellent support we received from Dr. Susanne Neubert who accompanied our working process in a wonderful manner. Thank you to everyone who helped us achieving this project.



## Executive summary

### Context

This study analysed the potential benefits and challenges of advancing the tourism and horticultural sectors in Uvs and Khovd Aimag (province), in Western Mongolia. The evaluation of both sectors was based on the analysis of the rural populations' livelihoods in both provinces.

Western Mongolia has a low population density and (semi-)mobile pastoralism is one of the main livelihood activities. The region is further characterised by low rainfall, short summers and harsh winters. Climate change, manifested as changing rainfall patterns, an increase in the mean temperature as well as the frequency of extreme weather events – such as harsh winter conditions referred to as *dzuds* – could present additional challenges for people living in the region's rural areas.

The structural changes brought by the country's transition to a market economy in the 1990s had an enduring effect on socio-economic conditions at the national level, and remain significant to this day. For our purposes, the defining phenomenon of the transformation was the high rate of rural to urban migration persistent over the past two decades.

The problem statement of the study is: *Interlinked and multidimensional structural and climatic changes threaten the quality of life and resilience of rural livelihood systems in Western Mongolia.*

Horticulture and Tourism were analysed as additional income opportunities for the rural population in the two provinces. The livelihood analysis situates the two sectors and their subsectors in a broader context and identifies target groups for possible development interventions taking into account capital asset endowments, underlying vulnerabilities, and existing livelihood strategies of the rural population as well as the seasonal and spatial availability of resources. Both tourism and horticultural activities are highly seasonal in that they are more prevalent during the summer months. Access to markets and agricultural products as well as tourist destinations is limited for local people due to the remoteness of both study areas.

### Livelihoods

Pursuing livelihood strategies requires various capital assets to achieve positive outcomes. Thus, the research project sought to gain a basic understanding of the assets and livelihood strategies as well as the vulnerability of the rural popula-

tion to the impacts of structural and climatic changes and to recurring shock events. In describing these factors, the aim was to identify groups of the rural population most inclined to work in the two studied sectors given their need to diversify and secure household incomes. Six different non-mutually exclusive groups were identified and as such deemed relevant to the efforts of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and its partners to reduce poverty, promote income diversification, and advance the sustainable and inclusive development of the two sectors. These were:

*Group 1: Households already active in either of the two sectors*

Households in both sectors usually operate on a small scale. Income is insufficient for the entire year, while income activities are already highly diversified. Many households are at risk of sudden asset loss and subsequent poverty as a result of weather- or market-related external shocks, i.e. sudden water shortages or price variability. Thus, an improvement of current market structures, business practices, and the facilitation of more stable year-round productive operations in the short-, medium- and long term are needed.

*Group 2: Job seekers and less educated*

Jobseekers and individuals that do not possess any vocational training or education beyond the secondary level face a higher rate of poverty countrywide (~50 % in comparison to the national average of ~30 %; NSO, 2018). Activities in both sectors pose comparatively low entry barriers in terms of formal education required and may therefore offer employment opportunities which could be promoted through capacity building measures in line with existing government programmes.

*Group 3: Women from low-income households*

Women from low-income households, especially single mothers and seasonal (winter) migrants seeking education for their children, require better income opportunities. Barriers to women's ownership of capital assets and decision-making power over resources need to be reduced by countering prevailing gender norms, and overcoming the double burden of productive and reproductive work. Particularly marginalised women from lower income households may be targeted in alignment with programmes by various women's associations. The development of both sectors should be based on their existing demands, aspirations, spatial and temporal availability for productive activities as well as knowledge and skills. The horticultural sector already offers promising opportunities in this regard.

*Group 4: Youth*

Sector development should further align with the needs and aspirations of young people with regard to education and income stability. Youth unemployment and the rural-to-urban migration rate are particularly high as attractive employment opportunities in the countryside are lacking. Physically exhausting occupations, including farming, are unattractive to many youths. Hence, the improvement and upgrading of production techniques e.g. through partial mechanisation and digitalisation could attract more youth. Further, young people may not be aware of relevant employment opportunities in the tourism industry, as this sector is less established than others. Supporting the availability of financial mechanisms tailored to the demands and aspirations of young entrepreneurs may also be considered.

*Group 5: Pastoralists with fewer than 200 heads of livestock, who experienced significant loss of livestock and have become (semi-)sedentary*

A significant number of herders have to abandon or adapt their occupation each year due to high loss of livestock induced by external shocks – like *dzuds* and gradual changes in the environment. Beneath a threshold of around 200 animals, seasonal herding as a main income activity is generally considered economically untenable. Thus, concerned households often become sedentary in the Soum centres where they find themselves among the poorest and in urgent need for new income opportunities. Meanwhile, the majority of pastoral households with more than about 200 animals shows no interest in additional income activities due to time and labour constraints. Further, the assumption that additional income would lead to a decrease in livestock numbers and thereby reduce the pressure on pastures could not be verified. Instead, the opposite may be true as livestock is commonly used as a stock of value and currency.

*Group 6: Artisanal or informal miners*

Artisanal gold miners are in need of income diversification due to the associated risks to people's health and the local environment caused by mining. The government is also leading a gradual phase-out of artisanal mining (particularly in Uvs Aimag). Entry points should be investigated where formerly active miners turned to other sources of income (e.g. horticulture) and could potentially act as role models and multipliers for other households.

*Group 7: Horticulturists*

Horticulture forms part of the agricultural sector and comprises the production of vegetables and fruits including the collection of wild berries. In Uvs and Khovd

province, commonly found horticultural products are root vegetables, cabbage, onions, watermelon, sea buckthorn and black currants. The production is dominated by small-scale farmers with plot sizes usually less than or around 1 hectare, family labour and low use of inputs (technology and capital). Some farmers are organised in agricultural cooperatives to share their resources and increase their bargaining power. Further, cooperative efforts are currently limited by the bad reputation of cooperative organisations, an impeding taxation law, and the lack of financing mechanisms.

### **Horticulture**

Among the local population, high hopes are placed on horticultural activities to create employment in rural areas. The sector can be described as inclusive as it offers employment opportunities to women as well as people without formal education. However, high investment costs for planting materials, including seeds, and fence construction presents an entry barrier for the poor.

*Seasonality:* Due to the harsh winter temperatures, Western Mongolia has a vegetation period of only four months – between May and September. Accordingly, most income opportunities in the horticultural sector are restricted to this short growing season. As most people prefer year-round employment, adapted technologies like winter-greenhouses could extend the growing season. Accessible storage and processing facilities could also allow for income generation in the off-season.

*Employment:* As the workload in the harvesting season usually exceeds the capacity of a farming household, seasonal labour is occasionally required. As contractual agreements for seasonal workers are usually absent, they are vulnerable to exploitation. This may undermine the social sustainability of the horticultural sector.

*Climatic risks:* The impacts of climate change exert an enormous pressure on horticultural systems in Western Mongolia. Many farmers reported an increase in the frequency of extreme weather events in recent years such as storms which can destroy their cultivated fields. Climate change threatens horticulture in two main ways. Firstly, the projected increase in summer temperature may further limit plant growth. Secondly, rainfall unpredictability infers drought or floods risks which have negative effects on harvests. Both pose a high production risk to farms in Uvs and Khovd Aimag.

*Water scarcity:* Horticultural activities rely heavily on the natural resource base. The availability and accessibility of water is insufficient to support the require-

ments of horticulture. Localised water scarcity has already caused differences in the availability of surface water for up- and downstream farmers.

*Soil degradation:* As (organic) fertiliser is not sufficiently available, both farmers and local research institutions reported a decline in soil fertility over the last 30 years (Batkishig, 2015). Management practices that could improve soil conditions in the study area, such as cover crops, green manure, and composting or mulching leaves on arable land, are at high risk of wind and water erosion. Water-saving technologies and the dissemination of soil conservation measures should thus be a priority to ensure the sustainable use of natural resources.

*Diversification:* As most farmers do not have access to diverse seeds or planting materials, produce offered at local markets is usually limited to a few crop species. Growing a wider diversity of vegetables, fruits and berries could increase product differentiation potentially enabling farmers to achieve higher profits at the market. Generally, access to agricultural inputs is low and small-scale farmers are not equipped with sufficient knowledge on adequate input use. The misuse of pesticides presents a risk to both human and ecosystem health. This aspect needs to be addressed in order to guarantee safe horticultural value chains for the producer, consumer and the local environment.

In conclusion, climatic production risks and the present use of natural resources as well as agricultural inputs currently limit the sustainable development of the horticultural sector. The introduction of adequate management practices and adapted technology could potentially increase farmers' capacities while also leading to value chain improvements. A potential for sustainable sector development lies, amongst others, in the high *motivation* among the rural population to engage in horticultural activities and *cooperative organisations* which enable the sharing of scarce financial and physical resources.

## **Tourism**

The national government defines tourism as the third pillar of the national economy. In Khovd and Uvs Aimag, the Tourism Development Strategy has a strong focus on community-based tourism (CBT) and so-called sustainable tourism. At present, the tourism sector is at an early development stage in both provinces. Both Aimags receive between 45.000 and 50.000 tourists annually (DET Khovd Aimag, 2019; HDRTC, 2019). The biggest share of the tourists in Khovd Aimag is domestic (85 % in 2018; DET Khovd Aimag, 2019). In Uvs Aimag, most of the travellers come from Russia for commercial purposes. Generally, the main tourist activities in the region are related to nature and cultural tourism. This in-



cludes hiking, horse riding, staying in *ger*<sup>1</sup> camps or with “nomadic” families and participating in cultural events and festivals.

The full market potential of the tourism sector is difficult to explore due to the lack of a monitoring system. Nevertheless, the study found that local employment opportunities are scarce and local value creation from the tourism industry is low. The majority of domestic tourists travel independently, staying only for a short time and bringing their own equipment and food. Therefore, few goods and services are purchased locally. International tourists commonly undertake longer journeys and arrive in groups organised by tour operators based in the capital. This implies that trained personnel and equipment is often brought from outside the region. In order to integrate the local population and especially women and youth in the local value-creation, different aspects of the tourism sector need to be considered. This study provides an assessment of the opportunities and challenges for tourism development in Khovd and Uvs Aimag.

*Infrastructure:* Poor road conditions and long distances restrict access to both regions and are key factors hindering sector development. Moreover, the capacity of domestic flights is low. Basic tourism infrastructure such as accommodation facilities has predominantly low standards in service, capacity and comfort.

*Seasonality:* The short duration of the season with its peak during the summer months is a main obstacle for the development of the tourism sector. Dependent on the location and type of accommodation, only a few tourism facilities operate throughout the year.

*Employment:* The wages in the sector are relatively low and many jobs are informal. The short tourism season restricts constant business activities throughout the year. It was found that there is a lack of skilled workforce in Western Mongolia due to absent vocational training opportunities. Access to appropriate financing mechanisms tailored to the needs of different clients and women in particular, is required to promote local businesses.

*Community-based tourism:* CBT can be an appropriate form of tourism to integrate local residents in the tourism value chain if certain preconditions are fulfilled. Firstly, it is advisable to develop and promote a network of CBT initiatives with different specific features and demand-oriented offers. This could help multiple communities benefit from the tourist inflow. Communities contribute labour and time to develop CBT initiatives. However, poorest community members face

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<sup>1</sup> Traditional Mongolian felt tent.

the risk to be excluded from CBT initiatives due to a lack of financial capital or time capacity.

*Knowledge and skills:* Human capital in the field of tourism is low in both Aimags. Hence, basic training is needed to provide local residents with the required qualifications to be employed by individual travellers or tour operators. Students often move to larger cities or abroad to receive higher education in tourism. Due to their qualification and the lack of jobs in the Aimags, they tend not to return to the provinces after graduation. Consequently, human capital is missing in the countryside, hampering regional economic development.

*Value creation:* The creation of value in the tourism sector is still low: only a few self-made products and local services, most of them low priced, are offered by local residents. The occasional participation of local residents in the tourism value chain generates only low revenue. By diversifying the range of consumer-oriented tourism offers, local value creation could increase. Additionally, linking tour operators with communities could help the residents generate income from tourism. The expansion of the product range including souvenirs, meat and dairy products, could constitute a source of additional income, especially for women. Product quality assurance, reliability and marketing may lead to a better linkage of herder households with the tourism sector.

*Heritage and authenticity:* The core experience in tourism is not site-specific but related to the lifestyle of the rural population. As the “nomadic” culture is not unique to Western Mongolia, the product portfolio needs to be extended. Regional attractions such as “cultural diversity” or unique geographical features should be considered in tourism development. With regards to cultural tourism, risks deriving from the commodification of customs were observed. Cultural tourism can, for example, reinforce gender stereotypes by romanticising the “nomadic” lifestyle and the inherent distribution of productive and reproductive tasks among women and men.

*Target group and tourism offers:* Provincial governments see events and festivities as a strategy to increase the number of international visitors and extend the tourism season. However, it was found that attendance of foreign travellers compared to national tourists was low. Thus, opportunities to create value are limited. Hence, it is advisable to concentrate on the development of domestic tourism. Furthermore, better coordination and cooperation between the Western Aimags is needed to create a regional tourism destination.

*Marketing:* Marketing is crucial to boost tourism and promote Western Mongolia as a travel destination. Social media, tourism fairs, TV broadcasts and online

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booking platforms are important channels. To ensure successful marketing, digital skills and internet connectivity are key requirements to attract youths.

*Protected areas and tourism development:* In both Aimags, about 40 % of the territory is under national nature protection (incl. buffer zones). Spatial planning is a crucial tool for protecting vulnerable ecosystems and developing protected areas. As developing the tourism sector could bring negative impacts and disturbances to wildlife, appropriate regulations must be considered. Currently, tourism contributes only marginally to nature conservation, as visitor fees are very low.

*Waste management:* The accumulation of waste is a negative side effect of the tourism industry and is common in tourism hotspots in both Aimags. Therefore, efforts in environmental education and development of appropriate management concepts are needed.

## Zusammenfassung

### Kontext

Diese Studie analysiert die potenziellen Vorteile und Herausforderungen der Entwicklung des Tourismus- und des Gartenbausektors in den Provinzen Uvs und Khovd Aimag der Westmongolei. Die Bewertung beider Sektoren basiert auf der Analyse der Livelihoodssysteme der ländlichen Bevölkerung in beiden Provinzen. Die Westmongolei hat eine sehr geringe Bevölkerungsdichte und der semi-mobile Pastoralismus stellt eine der wichtigsten wirtschaftlichen Aktivitäten zur Sicherung des Lebensunterhalts dar. Die Region ist zudem durch geringe Niederschläge, kurze Sommer und sehr harte Winter gekennzeichnet. Der Klimawandel, der sich in einem Anstieg der Durchschnittstemperatur, einer Zunahme extremer Wetterereignisse einschließlich harter Winter (*Dzuds*) und sich ändernden Niederschlagsmuster äußert, stellt die ländliche Bevölkerung vor große Herausforderungen. Die strukturellen Veränderungen, die der Übergang des Landes zur Marktwirtschaft in den 1990er Jahren mit sich brachte, wirkten sich nachhaltig auf die sozioökonomischen Bedingungen der Landbevölkerung aus und sind bis heute signifikant. Infolge dieser Transformation hat die Land-Stadt Flucht in den letzten zwei Jahrzehnten stark zugenommen.

Die Problemstellung der Studie lautet: *Vernetzte und multidimensionale strukturelle und klimatische Veränderungen bedrohen die Lebensqualität und die Resilienz der Livelihoodssysteme der ländlichen Bevölkerung in der Westmongolei.*

Die Sektoren Gartenbau und Tourismus wurden in Hinblick auf zusätzliche Einkommensmöglichkeiten für die ländliche Bevölkerung beider Provinzen analysiert. Die Analyse der Livelihoodssysteme stellt die beiden Sektoren in einen breiten Kontext. Unter Berücksichtigung der Kapitalausstattung, Vulnerabilitäten, Livelihood-Strategien und der damit zusammenhängenden saisonalen und räumlichen Verfügbarkeit von Arbeitskraft werden Zielgruppen möglicher Interventionen identifiziert.

Sowohl der Tourismus als auch die Gartenbauaktivitäten sind stark saisonabhängig und in den Sommermonaten stärker verbreitet. Der Zugang zu Märkten (und somit zu landwirtschaftlichen Produkten) und die Erreichbarkeit touristischer Reiseziele sind für lokale Gemeinden aufgrund der Abgelegenheit der Untersuchungsgebiete stark eingeschränkt.

### Livelihoodsysteme

Livelihood-Strategien setzen verschiedene Kapitalgüter ein, um positive Ergebnisse zu erzielen. Daher zeigt das Forschungsprojekt die Livelihood-Strategien der Landbevölkerung auf und stellt ihre Verwundbarkeit gegenüber strukturellen und klimatischen Veränderungen sowie wiederkehrender Schockereignisse heraus. Dies hatte zum Ziel, Gruppen der ländlichen Bevölkerung zu identifizieren, die angesichts ihrer Bedürfnisse nach (diversifizierten) Haushaltseinkommen am ehesten in den beiden untersuchten Sektoren arbeiten können und möchten. Es wurden sechs verschiedene, sich nicht gegenseitig ausschließende Zielgruppen identifiziert, die für die Arbeit der Deutschen Gesellschaft für Internationale Zusammenarbeit (GIZ) und ihrer Partner in der Armutsbekämpfung, der Einkommensschaffung und -diversifizierung und der nachhaltigen und inklusiven Entwicklung beider Sektoren relevant sind. Diese sind:

#### *Gruppe 1: Haushalte, die bereits in einem der beiden Sektoren aktiv sind*

Haushalte, die schon in den beiden Sektoren aktiv sind, sind in der Regel in einem kleineren Maßstab tätig. Das Einkommen reicht nicht für das gesamte Jahr aus und ihre Einkommensaktivitäten sind bereits stark diversifiziert. Viele Haushalte sind aufgrund externer wetter- oder marktbedingter Schocks, wie Klimawandel oder Wasserknappheit, von einem plötzlichen Verlust ihrer Einkommensquellen und daraus resultierender Armut bedroht. Für einen stabilen, ganzjährigen Produktionsbetrieb ist eine Verbesserung der derzeitigen Marktstrukturen und Geschäftspraktiken auf kurze, mittlere und lange Sicht erforderlich.

#### *Gruppe 2: Arbeitssuchende und gering qualifizierte Personen*

Individuen ohne Berufsausbildung- und/oder Sekundarbildung sowie Arbeitssuchende sind landesweit mit einer höheren Armutsrate konfrontiert (~50 % im Vergleich zum nationalen Durchschnitt von ~30 %). Einige Aktivitäten beider Sektoren stellen im Hinblick auf die erforderliche formale Bildung vergleichsweise niedrige Eintrittsbarrieren dar und können daher, im Einklang mit bestehenden Regierungsprogrammen, Chancen bieten, Kapazitäten aufzubauen.

#### *Gruppe 3: Frauen aus einkommensschwachen Haushalten*

Frauen einkommensschwacher Haushalte, insbesondere alleinerziehende Mütter und saisonale Migrantinnen, die im Winter für die Ausbildung ihrer Kinder in die Distriktzentren und Städte ziehen müssen, benötigen bessere Einkommensmöglichkeiten. Die bestehenden Barrieren bezüglich des Besitzes von Kapitalvermögen und Entscheidungsgewalt über Ressourcen müssen abgebaut werden, indem den vorherrschenden Geschlechternormen entgegengewirkt und die

Doppelbelastung durch produktive und reproduktive Arbeit überwunden wird. Marginalisierte Frauen aus einkommensschwachen Haushalten können in Abstimmung mit existierenden Programmen verschiedener Frauenverbände gezielt angesprochen werden. Die Entwicklung der Sektoren sollte sich an ihren bestehenden Bedürfnissen, Bestrebungen, ihrer räumlichen und zeitlichen Verfügbarkeit sowie ihrem Wissen und ihren Fähigkeiten orientieren. Der Gartenbau bietet vielversprechende Möglichkeiten: die lokale, regionale und nationale Nachfrage nach frischen Produkten ist hoch. Auch ohne formale Ausbildung ist eine Beschäftigung in dem Sektor möglich. Ein weiterer Vorteil besteht darin, dass Gartenbau-Projekte Einkommensmöglichkeiten für mehrere Personen anbieten können. So kann die zeitlich begrenzte Verfügbarkeit von Arbeitskraft oder -zeit durch die Zusammenarbeit mehrerer Personen kompensiert werden.

#### *Gruppe 4: Jugendliche*

Die Entwicklung der Sektoren sollte sich weiterhin an den Bedürfnissen und Erwartungen junger Menschen in Bezug auf Bildung und Einkommensstabilität orientieren. Die Arbeitslosigkeit und die Abwanderungsrate vom Land in die Stadt sind unter Jugendlichen besonders hoch, da es an attraktiven Beschäftigungsmöglichkeiten im ländlichen Raum mangelt. Körperlich anstrengende Berufe, wie eine Vielzahl der Tätigkeiten in der Landwirtschaft, sind für viele junge Menschen unattraktiv. Die Verbesserung und Modernisierung der Produktionstechniken, z.B. durch Mechanisierung und Digitalisierung, könnte mehr Jugendliche anziehen. Da sich der Tourismussektor in einer relativ frühen Entwicklungsphase befindet, sind sich junge Menschen oft nicht über die bestehenden Beschäftigungsmöglichkeiten in diesem Sektor bewusst. Die Verbesserung bestehender Finanzierungsmechanismen in Hinblick auf Anforderungen und Bedürfnisse junger Menschen kann ebenfalls als erfolgsversprechendes Handlungsfeld in Betracht gezogen werden.

#### *Gruppe 5: Viehhalter mit weniger als 200 Tieren, die einen erheblichen Viehverlust erlitten haben und (halb-)sesshaft geworden sind*

Jedes Jahr muss eine beträchtliche Anzahl von Viehaltern ihre Tätigkeit aufgeben und nach Alternativen suchen, da sie durch Schockereignisse wie *Dzuds* oder andere Umweltveränderungen einen hohen Verlust an Vieh erlitten haben. Unterhalb einer Schwelle von etwa 200 Tieren ist die saisonale Hirtentätigkeit als Haupteinkommensquelle wirtschaftlich nicht tragbar. Betroffene Haushalte werden daher oft in den Soum-Zentren sesshaft, wo sie sich dann unter den Ärmsten befinden und dringend neue Einkommensmöglichkeiten brauchen. Währenddessen zeigten Viehhalterhaushalte mit mehr Vieh, u.a. aufgrund von Zeit- und Arbeitskraftbeschränkungen, kein Interesse an zusätzlichen Einkommensquellen.

Außerdem konnte eine zentrale Hypothese des Forschungsauftrags, nämlich dass zusätzliches Einkommen zu einem Rückgang des Viehbestandes und damit zu einem Rückgang des Weidedrucks führen würde, nicht bestätigt werden. Eher das Gegenteil scheint der Fall zu sein: die Erschließung komplementärer Einkommensquellen kann zu einem Anstieg des Viehbestandes und damit des Weidedrucks führen.

### *Gruppe 6: Handwerkliche Bergleute*

Angesichts der hohen Gesundheits- und Umweltrisiken handwerklichen Bergbaus benötigen handwerkliche Bergleute alternative Einkommensquellen. Dies ist auch erforderlich, da die Regierung einen Ausstieg aus dem handwerklichen Bergbau vorantreibt (insbesondere im Uvs Aimag). Es sollte untersucht werden, wann und wie sich ehemals aktive Bergleute anderen Einkommensquellen zuwandten (z.B. Gartenbau) – möglicherweise könnten sie als Vorbild und Multiplikatoren für andere Haushalte fungieren.

### *Gruppe 7: Landwirte, die im Gartenbau arbeiten*

Der Gartenbau ist Teil des Agrarsektors und umfasst die Produktion von Gemüse, Obst sowie das Sammeln von Waldbeeren. Im Untersuchungsgebiet sind häufig vorkommende Gartenbauprodukte Wurzelgemüse, Kohl, Zwiebeln, Wassermelone, Sanddorn und schwarze Johannisbeeren. Die Produktion wird von Kleinbauern auf Parzellen von durchschnittlich um 1 Hektar oder weniger betrieben. Familienarbeit und ein geringer Einsatz von Kapital und Technologie ist die dominierende Produktionsweise. Einige Landwirte sind in landwirtschaftlichen Genossenschaften organisiert, um Vorteile wie die gemeinsame Nutzung von Ressourcen und Betriebsmittel zu genießen und um ihre Verhandlungsposition zu verbessern. Weitere Kooperationsbemühungen zielen darauf ab, Vorurteile und Entwicklungshindernisse abzubauen. So haben Genosschaftsorganisationen allgemein einen schlechten Ruf, da ihre Unternehmensform mit der sozialistischen Wirtschaftsform assoziiert und daher als ineffizient angesehen wird. Auch fehlen geeignete Finanzierungsmechanismen für Genossenschaften und nachteilige Steuergesetze müssen verbessert werden.

### **Gartenbau**

Die lokale Bevölkerung setzt hohe Erwartungen in den Gartenbau und hofft auf die Schaffung von Arbeitsplätzen in ländlichen Gebieten. Der Sektor kann als inklusiv bezeichnet werden, da er sowohl Frauen als auch Menschen ohne formale Ausbildung Beschäftigungsmöglichkeiten bietet. Hohe Investitionskosten für

Pflanzmaterial, einschließlich Saatgut, und der Bau von Zäunen stellen jedoch Eintrittsbarrieren für finanziell schwache Haushalte dar.

*Saisonalität:* Aufgrund der extremen Wintertemperaturen hat die Westmongolei eine sehr kurze Vegetationsperiode von nur vier Monaten zwischen Mai und September. Dementsprechend sind die meisten Einkommensmöglichkeiten im Gartenbau auf diese kurze Zeit beschränkt. Da die meisten Menschen eine ganzjährige Beschäftigung bevorzugen, könnten angepasste Technologien wie Winter-Gewächshäuser die Vegetationsperiode effektiv verlängern. Zugängliche Lager- und Verarbeitungseinrichtungen könnten auch in der Nebensaison Einkommensmöglichkeiten schaffen.

*Beschäftigung:* Da die Arbeitsbelastung in der Erntesaison in der Regel die Arbeitszeitkapazitäten eines landwirtschaftlichen Haushalts übersteigen, werden gelegentlich Saisonarbeitskräfte angestellt. Diese sind von Ausbeutung bedroht, da vertragliche Vereinbarungen in der Regel fehlen. Dies kann die soziale Nachhaltigkeit des Gartenbausektors untergraben.

*Klimatische Risiken:* Die Auswirkungen des Klimawandels üben einen enormen Druck auf die Gartenbausysteme in der Westmongolei aus. Viele Landwirte berichten über eine Zunahme extremer Wetterereignisse in den letzten Jahren, wie z.B. Stürme, die ihre Felder zerstören. Darüber hinaus kann der prognostizierte Anstieg der Sommertemperatur als Folge des Klimawandels das Pflanzenwachstum weiter einschränken, während die derzeitige Unvorhersehbarkeit der Regenfälle zu Dürre- oder Überschwemmungsrisiken führt, die sich negativ auf die Ernten auswirken. Der Klimawandel stellt somit ein hohes Produktionsrisiko für landwirtschaftliche Betriebe dar.

*Wasserknappheit:* Gartenbauliche Aktivitäten sind stark von der natürlichen Ressourcengrundlage abhängig. Sowohl die Verfügbarkeit als auch der Zugang zu Wasserressourcen sind für gartenbauliche Aktivitäten unzureichend. Lokale Wasserknappheit hat bereits zu Unterschieden in der Verfügbarkeit von Oberflächenwasser für Landwirte flussauf- und -abwärts geführt.

*Verschlechterung der Bodenqualität:* Da (organischer) Dünger nicht ausreichend verfügbar ist, berichten sowohl Landwirte als auch lokale Forschungseinrichtungen über einen Rückgang der Bodenfruchtbarkeit im Laufe der letzten Jahre (Batkhishig, 2015). Bewirtschaftungspraktiken, die zur Verbesserung der Bodenbedingungen im Untersuchungsgebiet eingesetzt werden können, wie z.B. das Anpflanzen von Deckfrüchten, Gründüngung, Kompostierung oder Mulchen von Blättern auf Ackerland, sind potenziell stark wind- und wassererosionsgefährdet. Wassersparende Technologien und die Verbreitung von Bodenschutzmaßnahmen



sollten daher eine Priorität sein, um die nachhaltige Nutzung der natürlichen Ressourcen zu gewährleisten.

*Diversifizierung:* Da die meisten Landwirte keinen Zugang zu verschiedenem Saat- und Pflanzengut haben, sind die auf den lokalen Märkten angebotenen Produkte in der Regel auf einige wenige Kulturpflanzenarten beschränkt. Der Anbau einer breiteren Vielfalt an Gemüse, Früchten und Beeren könnte die Produktdifferenzierung erhöhen und den Landwirten ermöglichen, potenziell höhere Gewinne auf dem Markt zu erzielen. Im Allgemeinen ist der Zugang zu landwirtschaftlichen Betriebsmitteln eher schlecht, und Kleinbauern verfügen nicht über ausreichende Kenntnisse über die adäquate Verwendung von Betriebsmitteln. In einigen Fällen stellt der Missbrauch von Pestiziden ein Risiko für die Gesundheit von Menschen und Ökosystem dar. Dieser Aspekt muss angesprochen werden, um sichere gartenbauliche Wertschöpfungsketten für den Produzenten, den Verbraucher und die lokale Umwelt zu gewährleisten.

Zusammenfassend lässt sich sagen, dass die klimatischen Produktionsrisiken und die derzeitige Nutzung der natürlichen Ressourcen sowie der landwirtschaftlichen Betriebsmittel die nachhaltige Entwicklung des Gartenbausektors einschränken. Die Einführung angemessener Managementpraktiken und angepasster Technologien könnte die Kapazitäten der Landwirte potenziell erhöhen und gleichzeitig zu einer Verbesserung der Wertschöpfungskette führen. Ein Potenzial für eine nachhaltige Entwicklung des Sektors liegt in der hohen Motivation der ländlichen Bevölkerung, sich an gartenbaulichen Aktivitäten zu beteiligen, sowie in Formen der genossenschaftlichen Organisation, welche die gemeinsame Nutzung knapper finanzieller und materieller Ressourcen ermöglicht.

### **Tourismus**

Die nationale Regierung definiert den Tourismus als die dritte Säule der nationalen Wirtschaft. In Khovd und Uvs Aimag liegt der Schwerpunkt der Tourismusentwicklungsstrategie auf community-based tourism (CBT) und dem sogenannten nachhaltigen Tourismus. Gegenwärtig befindet sich der Tourismussektor in beiden Provinzen in einem frühen Entwicklungsstadium. Beide Aimags empfangen jährlich zwischen 45.000 und 50.000 Touristen (DET Khovd Aimag, 2019; HDRTC, 2019). Der größte Anteil der Touristen in Khovd Aimag ist nationalen Ursprungs (85 % im Jahr 2018; DET Khovd Aimag, 2019). Die meisten Reisenden in Uvs Aimag kommen aus Russland und verfolgen hauptsächlich kommerzielle Zwecke. Im Allgemeinen sind die wichtigsten touristischen Aktivitäten in der Region mit Natur- und Kulturtourismus verbunden. Dazu gehören Wandern, Reiten, Aufent-

halte in *Ger-Camps* oder bei "nomadischen" Familien und die Teilnahme an kulturellen Veranstaltungen und Festivals.

Das volle Marktpotential im Tourismussektor ist aufgrund des Fehlens eines Monitoringsystems nur schwer abzuschätzen. Dennoch konnte die Studie feststellen, dass nur geringe lokale Beschäftigungseffekte bestehen und die lokale Wertschöpfung der Tourismusindustrie gering ist. Die Mehrheit der einheimischen Touristen reist eigenständig, für kurze Dauer und nutzt dabei eigene Ausrüstung und Verpflegung. Daher werden nur im geringen Maß Waren und Dienstleistungen gekauft. Internationale Touristen reisen in der Regel für eine längere Reisedauer und kommen meist in Gruppen an, die von Reiseveranstaltern mit Sitz in der Hauptstadt organisiert werden. Dies bedeutet, dass geschultes Personal und Ausrüstung oft von außerhalb der Region stammen. Um die lokale Bevölkerung und insbesondere Frauen und Jugendliche in die lokale Wertschöpfung zu integrieren, müssen verschiedene Aspekte des Tourismussektors berücksichtigt werden. Die Chancen und Herausforderungen für die Tourismusentwicklung werden in der Studie bewertet und diskutiert.

*Infrastruktur:* Schlechte Straßenverhältnisse und große Entfernungen schränken die Erreichbarkeit der abgelegenen Region ein und stellen wesentliche Entwicklungsbarrieren für den Sektor dar. Weiterhin ist die Kapazität der Inlandsflüge gering. Die touristische Basisinfrastruktur, wie Unterkünfte, hat überwiegend einen niedrigen Standard hinsichtlich Service, Kapazität und Komfort.

*Saisonalität:* Die kurze Dauer der Saison mit ihrem Höhepunkt in den Sommermonaten ist ein großes Hindernis für die Entwicklung des Tourismussektors. Je nach Lage und Art der Unterkünfte sind nur wenige touristische Einrichtungen das ganze Jahr über in Betrieb.

*Beschäftigung:* Die Löhne in diesem Sektor sind niedrig und viele Arbeitsplätze sind informell. Die kurze Tourismussaison schränkt eine konstante Geschäftstätigkeit während des ganzen Jahres ein. Es wird festgestellt, dass es in der Westmongolei aufgrund fehlender Berufsausbildungsmöglichkeiten an qualifizierten Arbeitskräften mangelt. Zur Förderung lokaler Unternehmen ist der Zugang zu geeigneten Finanzierungsmechanismen erforderlich, die auf die Bedürfnisse der verschiedenen Interessengruppen zugeschnitten sind und insbesondere für Frauen zur Verfügung stehen könnten.

*Community-based tourism:* CBT kann eine geeignete Form des Tourismus sein, um Einheimische in die touristische Wertschöpfungskette zu integrieren, jedoch nur, wenn bestimmte Voraussetzungen erfüllt sind. Es ist ratsam, ein Netzwerk von CBT-Initiativen zu entwickeln und zu fördern. Somit könnten mehrere Ge-

meinden vom Tourismus profitieren. Die Gemeinden tragen Arbeit und Zeit als laufende Investition zur Entwicklung von CBT-Initiativen bei. Dabei ist zu beachten, dass die ärmsten Mitglieder Gefahr laufen, aufgrund mangelnder finanzieller oder zeitlicher Kapazitäten ausgeschlossen zu werden.

*Wissen und Fähigkeiten:* Das Humankapital im Tourismussektor ist in beiden Aimags gering. Daher ist eine Grundausbildung erforderlich, die den Einheimischen die erforderlichen Qualifikationen vermitteln kann, sodass sie von Individualreisenden oder Reiseveranstaltern beschäftigt werden können. Um eine bessere Ausbildung im Bereich Tourismus zu erhalten, ziehen die Studierenden in größere Städte oder ins Ausland. Aufgrund ihrer Qualifikation und des Mangels an Arbeitsplätzen in den Aimags kehren die Fachkräfte nach ihrem Abschluss in der Regel nicht in die Provinzen zurück. Folglich fehlt auf dem Land Humankapital, was die regionale wirtschaftliche Entwicklung behindert.

*Wertschöpfung:* Die Wertschöpfung im Tourismussektor ist immer noch gering: es werden nur wenige selbstgefertigte Produkte und lokale Dienstleistungen angeboten und die Preise sind meistens gering. Die unbedeutende und nur gelegentliche Beteiligung der lokalen Bevölkerung an der Wertschöpfungskette des Tourismus führt zu geringen Einnahmen auf lokaler Ebene. Die Diversifizierung zu einem mehr verbraucherorientierten Tourismusangebot und eine bessere Integration der lokalen Bevölkerung kann Potentiale für eine höhere lokale Wertschöpfung erschließen. Insbesondere die Zusammenarbeit von Reiseveranstaltern mit den Gemeinden der lokalen Bevölkerung ist ein wichtiger Ansatzpunkt, um bessere Einkommensmöglichkeiten im Tourismus zu schaffen. Die Erweiterung des Produktangebots, einschließlich Souvenirs, Fleisch- und Milchprodukten, kann eine zusätzliche Einkommensquelle darstellen, insbesondere für Frauen. Die Qualitätssicherung, Zuverlässigkeit und Vermarktung der Produkte kann zu einer besseren Verbindung der Hirtenhaushalte mit dem Tourismussektor führen.

*Kulturerbe und Authentizität:* Die zentrale Erfahrung im Tourismus ist nicht ortsgebunden, sondern hängt mit dem „nomadischen“ Lebensstil der ländlichen Bevölkerung zusammen. Da die "nomadische" Kultur nicht nur in der westlichen Mongolei anzutreffen ist, sollte das Produktportfolio erweitert werden. Regionale Attraktionen wie die kulturelle Vielfalt oder die einzigartigen geografischen Merkmale sollten bei der Tourismusentwicklung stärker berücksichtigt werden. Im Hinblick auf den Kulturtourismus werden Risiken beobachtet, die sich aus der Kommodifizierung von Bräuchen ergeben. Kulturtourismus kann Geschlechterstereotypen verstärken und den "nomadischen" Lebensstil romantisieren.

*Zielgruppe und touristische Angebote:* Die Provinzregierungen sehen in Veranstaltungen und traditionellen Festen eine Strategie zur Erhöhung der Zahl internationaler Besucher und zur Verlängerung der Tourismussaison. Es wird jedoch festgestellt, dass die Besucherzahlen ausländischer Reisender im Vergleich zu nationalen Touristen nach wie vor gering und die Möglichkeiten zur Wertschöpfung begrenzt sind. Es ist daher ratsam, sich verstärkt auf die Entwicklung des nationalen Tourismus zu konzentrieren. Darüber hinaus ist eine bessere Koordination und Zusammenarbeit zwischen den westlichen Aimags erforderlich, um ein gemeinsames regionales Tourismusziel (Westmongolei) zu schaffen.

*Vermarktung:* Marketing ist entscheidend, um den Tourismus zu fördern und die Westmongolei als Reiseziel zu etablieren. Soziale Netzwerke, Tourismusmes- sen, TV-Sendungen und Online-Buchungsplattformen sind dafür wichtige Kanäle. Für ein erfolgreiches Marketing sind digitale Fähigkeiten und der Zugang zum Internet wichtige Voraussetzungen, sodass sich auch Jugendliche verstärkt in diesem Sektor engagieren können.

*Schutzgebiete und Tourismusentwicklung:* In beiden Aimags stehen etwa 40 % des Gebietes unter nationalem Naturschutz (inkl. Pufferzonen). Aufgrund der hohen Vulnerabilität der Ökosysteme ist Raumplanung ein entscheidendes Instrument für den Erhalt der Schutzgebiete und Ökosysteme. Negative Auswirkungen, die durch unregulierte Tourismusentwicklung verursacht werden können, sollten verhindert werden. Derzeit trägt der Tourismus nur in geringem Maße zur Einkommenssteigerung durch Naturschutz bei, da die Eintrittspreise der Naturparks sehr niedrig sind.

*Abfall:* Der entstehende Abfall ist ein negativer Nebeneffekt der Tourismusindustrie und in den touristischen Hotspots beider Aimags sichtbar und verbreitet. Daher sind Umweltbildung und die Entwicklung geeigneter Managementkonzepte zur Abfallbeseitigung erforderlich.



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## Abbreviations

ADB	Asian Development Bank
AEA	Aimag environmental authorities
CBT	Community-based tourism
CEO	Chief Executive Officer
CRM	Citizens' Representative Meeting
CSA	Community Supported Agriculture
DET	Department of Environment and Tourism
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
GDP	Gross domestic product
GERES	Groupeement pour l'Exploitation Rationnelle de l'Energie Solaire (Group for the rational exploitation of solar energy)
GI	Geographical Indication
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GoM	Government of Mongolia
ICT	Information and communication technology
IFAD	International Fund for Agricultural Development
IMRI	Integrated Mineral Resources Initiative
IOM	International Organization for Migration
IPAS	Institute for Plant and Agricultural Research
ITB	International Tourism Fair Berlin
IWRM	Integrated Water Resource Management
JICA	Japan International Cooperation Agency
MNT	Mongolian Tugrik (national currency)
MoET	Ministry of Environment and Tourism
MoFA	Ministry of Food and Agriculture
MTA	Mongolian Tourism Association
MULS	Mongolian University of Life Science
MWFA	Mongolian Women Farmers Association
NAEC	National Agricultural Extension Centre
NAMAC	National Association of Mongolian Agricultural Cooperatives
NFBA	National Fruit and Berry Association
NGO	Non-Governmental Organisation
NSO	National Statistics Office (of Mongolia)
NPCD	National Program for Cooperative Development

PAA	Protected Area Administration
PAMD	Protected Area Management Department
PGR	Plant genetic resources
PUG	Pasture User Group
RBA	River Basin Administration
RBC	River Basin Council
RBO	River Basin Organisation
SDC	Swiss Agency for Development and Cooperation
SDF	Soum Development Fund
SLA	Sustainable Livelihoods Approach
SME	Small and medium-sized enterprise
STDC	Sustainable Tourism Development Center in Ulanbaatar
SPA	Special Protected Area
SPACES	Supporting Protected Areas for the Conservation of Ecosystem Services
SWOT	Strengths, Weaknesses, Opportunities and Threats (Analysis)
TNC	The Nature Conservancy
UBTA	Ulanbaatar Tourism Association
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
UNWTO	United Nations World Tourism Organization
USD	United States Dollars
VAT	Value added tax
WUG	Water User Group
WWF	World Wide Fund for Nature

## **1 Background of the study**

Mongolia experienced a rapid transformation during its socialist period, lasting from 1924 until 1992, from a largely rural and pastoralist to a more industrialised economy based on the mining of raw materials, including coal, gold, and copper. This was mainly the result of substantial investments and loans provided by the Soviet Union to aid the centrally-planned economy particularly in the late 1980s. Following popular uprising and the eventual dissolution of the Soviet Union and its satellite states in the 1990s, the government embarked on a market-oriented reform path, focusing on rapid privatisation, price liberalisation and the establishment of new economic institutions. In line with the recommendations of the World Bank and other external advisors, the government initiated cost recovery measures in public expenditure, including in health and education, and reduced subsidies and the size of the civil service sector (Myadar, 2006; World Bank, 1991). As a result of the elimination of Soviet assistance and sudden privatisation, economic activity decreased significantly, which led to supply shortages, income loss, mass unemployment and the reappearance of wide-scale poverty, most of which were previously virtually absent in the country (Griffin, 1995; Hahm, 1993; O20).

Deteriorating living conditions forced many people to re-migrate to rural areas and take up pastoralism to make a living. The livestock sector in the socialist period was highly specialised and planned by so-called *negdel* collectives. *Negdels* provided pastoralists with economic and social benefits, including a fixed monthly income, machinery, risk insurance and disaster relief, child and health care. The introduction of market-oriented reforms in the 1990s led to the transfer of production and marketing risks from the disintegrated collectives to individual herders. The result was a retreat into subsistence-oriented herding by the population and the creation of extreme wealth differences in rural areas (O12; O18; Sneath, 2012; Swift, 1995, p.104). In 1992, around 60 % of rural households owned fewer than 50 animals and 20 % less than ten. At the same time, the number of herding households increased two-fold until the mid-1990s, with 250.000 people suddenly becoming directly dependent on small-scale livestock holdings. By 1998, 50 % of Mongolia's working population relied on pastoralism as their main livelihood activity, compared to 18 % only ten years before (Endicott, 2012, p.87; Sneath, 2012, p.464).

Attempts by external institutions to push for the privatisation of land on the grounds of the "tragedy of the commons" have, until today, been defeated by the Mongolian government as land is considered to be a source of collective national



## 2 Background of the study

wealth. However, with growing inflow of foreign investments and dependence on the primary sector, the economy has become increasingly vulnerable to fluctuating global prices of raw materials, primarily in the mining sector where most of the public budget is generated by taxes, leading to multiple economic slowdowns and growing government debt over recent years (Ahearn, 2018a; IMF, 2017; Plueckhahn & Bumochir, 2018).

Growing inequality, alongside poverty, have become persistent issues in both urban and rural settings (Ahearn, 2018a). The nation's wealth, including ownership of corporations, has increasingly been concentrated in the hands of a minority (99.6 % of the shares listed on the Mongolian Stock Exchange are owned by only 5 % of the shareholders). Due in part to rapid privatisation in the 1990s, formerly held political power was transformed by elite networks into economic wealth, blurring the lines between the two, resulting in what is titled the "unjust privatization of property" (Sneath, 2018, p.478). Considering the current distribution of wealth and corporate assets, economic growth alone is unlikely to reduce persistent poverty and distribute income more equally. More likely is that growth will benefit those already endowed with considerable wealth (ibid.). The market economy – or the "age of the market" as it is often referred to in Mongolia – and its associated reforms and structural changes thus remain contested topics that influence economic and social life to this day (Plueckhahn & Bumochir, 2018, p.345).

Mongolia saw a rapid and dynamic development of internal migration in the past three decades. Rapid urban to rural migration in the early 1990s was largely driven by the collapse of the urban industrial economy and loss of employment in urban areas (Mearns, 2004). However, since the 2000s, in what is titled the "big migration", this trend was reversed by a unidirectional rural to urban movement, particularly to the capital city of Ulaanbaatar (Lindskog, 2014; UNDP, 2007). According to official data, from 2000 to 2018, close to 550.000 people moved to Ulaanbaatar, corresponding to more than one-third of the city's current population (NSO, 2018). This is the result of a multitude of driving factors, including the impacts of climate change, increasing incidents and intensity of extreme weather events, a lack of rural employment and education opportunities, the absence of vital health and other public services and the often split nature of households, with families seeking to reunite (Fernández-Giménez et al., 2017; IOM, 2018a; Lehmann-USchner & Krähnert, 2018). Within the recipient cities, people often find themselves in harmful living conditions. While official data is unable to reveal the full picture of migration amidst an ongoing migration ban effective as of 2017 that is practically prohibiting people from registering at their destination locations and

accessing public services, it is thought that almost 80 % of all newcomers to Ulaanbaatar settle in the city's informal outskirts. There, people have limited to no access to essential infrastructure and health care, while being exposed to considerably high levels of pollution, particularly from the burning of coal during winter (IOM, 2018a, p.36; I12; Lindskog, 2014; Myadar, 2006, p.178).

The annual mean surface temperature over the Mongolian territory has increased by 2.24 °C since 1940, about twice as much as the respective global average. In the past 80 decades, the ten warmest years in Mongolia all occurred since 2000 (MoET, 2018, p.28). Owing to its geographic location, ecosystem composition and the pastoral livelihoods of much of the rural population, Mongolia is considered alongside low lying coastal regions to be one of the countries most vulnerable to the impacts of climate change (ADB, 2013; MoET, 2014). While climate change has had only a minor influence on the total amount of annual precipitation, the amounts of snowfall during winter have increased. At the same time, the occurrence and duration of extreme hot days and consecutive drought events during summer have increased in particular since 2000, resulting in more frequent and prolonged heat waves and the temporary degradation of rangelands (Lkhagvadorj et al., 2013; MoET, 2014; MoET, 2018). Drought events in the early 21st century have been the most severe in the last 1100 years, while their frequency almost doubled in the past 70 years (Marin, 2010, p.171; Venable et al., 2015, p.80). While efforts are being made to restore water bodies, more than 8 % of all lakes, rivers and springs in the country have dried out, leading to accelerated desertification (Fernández-Giménez et al., 2017; NSO, 2018). More storms and heavy rain events during the growing season, on the other hand, have led to an increase in the maximum amount of daily precipitation (MoET, 2014).

Temperature projections indicate that the annual mean surface temperature in Mongolia could increase by up to 6.3 °C degrees between 2081 and 2100. An increase in temperatures will be distributed disparately across regions and seasons, with Western Mongolia expected to experience warmer temperatures of 5.5 to 7.5 °C during winter and 5.5 to 6.5 °C during summer, leading to a potential increase in evapotranspiration in summer by up to 90 %. Winter snowfall in the Western regions may increase by up to 75 % and summer precipitation diminish by 10 % (ADB, 2013, p.8-9; MoET, 2014, p.77-78; MoET, 2018, p.107). Warming is happening even faster in the mountainous regions of Western Mongolia, particularly in the Altai Mountain range. Glaciers in the high Altai Mountains have decreased by 30 % since the 1940s. Projected accelerated melting will ultimately influence downstream river runoffs and substantially decrease the availability of surface water by the mid-century at the latest (ADB 2013, p.8-9; Karthe et al.,

## 4 Background of the study

2017; MoET, 2014, pp.54, 64). As current observations and the projected temperature increase are unprecedented and are likely to go beyond anything experienced in the previous few millennia, livelihoods dependent on activities closely linked to the country's natural resource base, including in agriculture and tourism, are likely to be significantly affected by the climate crisis.

For rural livelihoods in Western Mongolia, the reduction in pasture biomass due to the increasing frequency of heat waves and drought events, coupled with an increase in precipitation and cold waves during winter, will likely result in more livestock being lost while also affecting the long-term attributes of herded animals, namely a decrease in their weight and produced output, such as meat and wool. Climate change could lead to a decrease of 5.4 % in Mongolia's entire livestock production by 2050 (MoET, 2014, pp.145-146). At the same time, Western arable farming regions may experience a more than 30 % decrease in the average yield per hectare by 2030, all of which may lead to reductions in the income generated by the rural population (*ibid.*, p.155).

The notable increase in livestock across Mongolia in recent years has raised concerns about the ecological sustainability of mobile pastoralism among policy makers and international donors (Fernández-Giménez et al., 2017). The total number of livestock in 2018 was 66.5 million, the highest it has ever been in recorded history, compared to 25.9 million in 1990 (NSO, 2018). Stated in this context is the link between the growing number of livestock and the degradation of pastureland. This is thought by aid agencies and donor organisations to be due to a so-called "tragedy of the commons", where overgrazing is said to result from the motivation of individual herders, who graze their animals on commonly owned land, to increase livestock with the aim to grow production, thereby paying insufficient attention to potential land degradation. Demands were hence made to privatise land so as to lower the incentives of individual actors to overuse pastures. Decades-long research has proven, however, that common pool resource management in the form of self-governing institutions can effectively avoid land degradation, thereby rejecting the need for privatisation and the notion of a "tragedy of the commons", which has indeed been found to be a poor guide to understanding pastoral practices (Endicott, 2012, pp.90-93; Ostrom, 1990).

Common pool management approaches centred around property regimes, and conservation-oriented and community-based natural resource management, however, have largely failed to solve the issues around pastureland management in Mongolia (for a detailed explanation see Undargaa, 2016, pp.172-177). This may be attributed to the fact that pastoral land use in Mongolia, and in Central Eurasia

at large, continues to be historically misunderstood as well as misinterpreted as a problem of “open access” (Endicott, 2012; Undargaa, 2016, p.2). What is often overlooked is the fact the management of common pool resources in Mongolia has undergone a profound transformation since the early 1990s. The sudden disintegration of formal pastoral institutions and land use practices previously upheld by the *negdel* led to an absence of binding mechanisms to control access to pastoral resources. Many herders have since returned to utilising a complex set of customary production methods and traditional land use rights that dependent on seasonality and location and are influenced by continuously and dynamically shifting conditions in the environment and markets.

Customary rights, too, however, have suffered from the transition and the considerable urban exodus that followed the collapse of the industrial sector. Amidst rampant unemployment, many so called “new herders” turned to herding as their main livelihood activity, settling nearby urban areas with easier access to markets, something previously provided for by the *negdel* even for the most remote herders. The increasing number of herders grazing their livestock nearby larger settlements subsequently put pressure on local water and land resources. What led to overgrazing was therefore not the fact that pastures were “open access”, bearing in mind that land was still mostly allocated based on herders’ traditional use rights. Overgrazing was mainly the result of a rapidly growing number of unevenly distributed pastoral households keeping their livestock near the country’s urban areas as a result of the transition to a market-economy. The overuse of pastureland also resulted from the decreasing mobility of herders in response to climate change and shrinking water availability (Undargaa, 2016). Consequently, overgrazing cannot be considered to have emerged as a uniform phenomenon across the entire country. Pastoralists have in fact no immediate interest in overusing grazing land, as production cost significantly increase as a result of pasture degradation, due to the necessity to purchase supplementary fodder and having to undertake long-haul herd migrations to more remote pastures. Resource overuse also arises from growing inequalities among herders, with wealthier herders wielding political influence to secure access to pastures closely located to markets and water resources, further increasing livestock density in semi-urban areas (Mearns, 2004; MoET, 2014).

Even though protected areas in Mongolia are expanding in a response to a loss of biodiversity and apparent land degradation, there exists no unanimous agreement over the actual extent of land degradation, with estimates ranging from nine to 90 % (Undargaa, 2016). Fernández-Giménez et al. (2017) found “no evidence that a large proportion of Mongolian rangelands have crossed a degradation

## 6 Background of the study

threshold of irreversible change in species composition, production or ecological potential". While Western Mongolia experienced significant stocking of animals, their density saw little or no net growth over the past 25 years (vegetative growth capacity may have even improved). Land cover change across the country tends to coincide with urbanisation, mining, deforestation and wildfires, however (ibid., pp.57-60). Land allocated to mining, conservation, agriculture, or areas affected by wildfires may also force herders to relocate and adapt their mobility patterns, thereby increasing grazing pressure in some areas (Marin, 2010; Mearns, 2004). Land degradation and soil erosion may further be exacerbated by climate change in connection with forest and wildfires and heavy rainfall (IPCC, 2018a). Overgrazing and land degradation in the Mongolian context have thus to be understood as complex issues embedded in larger economic, political, social and environmental systems.

Mongolia's livestock economy remains crucial for the country as it plays important economic, social and environmental roles. Livestock herding accounts for 80 % of Mongolia's agricultural output and generates about 12 % of the country's gross domestic product (GDP) (JICA, 2017a). The real contribution of the livestock economy can not only be seen in the terms of its share of GDP, nor should it be compared, for example, with the mining sector solely in terms of its gross revenue. The livestock economy provides food security and a source of income, enables asset savings and soil fertility, and supports the well-being of rural households. Given that 80 % of the country's landscape is covered with rangeland, livestock production is set to remain the backbone of rural livelihoods.

Following the country's transition from a state-controlled to a free market economy, a series of structural economic issues remain unresolved hindering sustainable development. As a landlocked country, Mongolia is surrounded by China and Russia, and was therefore subjected to major geopolitical interest after the collapse of the Soviet Union. Nations like Japan and Korea, but also European countries and the United States have since strengthened their relations and significantly increased the financing of their International Cooperation with the country. Japan's funding of USD 302.5 million on average from 2017 to 2018 makes it by far the most important single donor, Germany financed aid projects with a budget of USD 28.2 million, ranking fifth in the list of most important donors (OECD, 2020). Nevertheless, Mongolia's economy is still highly dependent on its neighbours; China is by far the most important export market, 80-90 % of all exports are destined for the Chinese market. Nevertheless, Mongolia's economy is still highly dependent on its neighbours; China is by far the most important export market, 80-90 % of all exports are destined for the Chinese market.

After three decades of an ongoing transition process the country had poor progress in diversifying its economy. The most significant economic achievement of the last three decades came with the discovery of abundant metal and mineral resources that allowed a transformation into a raw material export economy. Mongolia has extensive deposits of copper, gold, coal, molybdenum, fluorspar, uranium, tin and tungsten (Deutsche Rohstoffagentur, 2016). The booming mining industry became an important source of economic development, tax revenue and export earnings as well as a limited source of employment. This led to higher dependency in the primary sector and a specialisation into relatively small selection of industrial products reliant on export markets. This may have, to some extent, hindered the emergence of new sectors. Today, the most important export products with a value of USD 3.2 billion are minerals and carbon (43.4 % of total exports), followed by ores, slag, and ash (36.5 %), gems and precious metals (9.8 %), wool (2.7 %), meat and meat preparations (1.8 %), copper (1.6 %), and salt, sulphur, stone, and cement (1.3 %) (UN Comtrade Database, 2019).

As a result of its heavy export dependency and a high price volatility especially of metal and mineral products on the world markets in recent years, the country is experiencing unstable economic development in response to boom-and-bust cycles. Unstable economic conditions also put poverty reduction achievements at risk. Since 2010, the country managed to lower the national poverty rate from 38.7 % to 21.6 % in 2014. Since the last economic downturn in 2019 poverty rose again to 28.4 %. Poverty remains particularly high in rural areas (30-40 %), yet with a strong ongoing migration from rural to urban areas, poverty is also increasingly concentrating in urban areas (NSO, 2018).



## 2 Objectives of the study and research questions

The diversification of income opportunities in the rural Mongolian economy, including the promotion of horticultural production and tourism activities, is thought to support the resilience of households and their adaptation to the climate crisis and economic uncertainties (Batjargal & Enkhjargal, 2013). It would also help to stabilise the generation of tax revenues by the public sector, which is currently highly dependent on the revenue from the mining sector. Efforts to extend livelihood activities to the crop producing sector are also viewed in the light of the growing interest of the Mongolian government to foster the country's agricultural self-sufficiency (Endicott, 2012).

Based on this understanding, the focus of this study is to analyse the development potential of additional income sources for the rural population in Western Mongolia in tourism and horticultural production in an effort to support the overall diversification of the Mongolian economy. While it has to be outlined that the improvement and professionalisation of the main value chains related to the existing livestock economy (meat, dairy products, wool, cashmere, skins etc.) may also be considered for improving economic conditions, this study provides context-specific information on sustainable and inclusive strategies for the generation of additional income from other sectors.

In order to achieve this, the research delivers the following outputs: (1) translocal and seasonal livelihood aspects of the rural population relevant for the development of additional income strategies are described, (2) prospects and challenges of horticultural production and tourism activities as income sources are assessed in a gender- and youth-sensitive way, and (3) recommendations for possible entry points centred around inclusive and sustainable tourism activities and horticultural production are developed.

The research concept contains three main topics of analysis: livelihood systems, tourism and horticulture. The gathering of relevant information and data is conducted for each of the three topics. The guiding research questions are formulated respectively as follows:

### **Livelihoods**

- How do interlinked and multidimensional structural and climatic changes affect local livelihoods and their vulnerability?
- What are the interests and visions of the rural population for sustaining their existing livelihoods amidst the identified changes?



## 10 Objectives of the study and research questions

- To what extent are the proposed income strategies compatible with existing livelihoods and adaptable to long-term changes?

### Horticulture

- What kind of horticultural production is already practiced by the rural population?
- Which institutional, agro-ecological, social-cultural, economic and technological conditions shape horticultural production in the study area?
- Under which conditions and to what extent could horticulture contribute to income creation and increase the resilience of the rural population in a sustainable, gender and youth-sensitive way?

### Tourism

- What are the current barriers and prospects of tourism development in the study area?
- Under which conditions and to what extent can tourism contribute to nature conservation?
- Under which conditions and to what extent could tourism improve income generation and the resilience of the rural population in a sustainable, gender and youth-sensitive way?

The main readership of this study includes the Mongolian Ministry of Food and Agriculture (MoFA), the Ministry of Environment and Tourism (MoET), the National Development Agency (NDA), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, national and international institutions, including non-governmental organisations (NGOs), associations, cooperatives, the private sector, and the local population.

Based on the findings of the study, relevant information about rural livelihood aspects and recommendations stemming from the analysis of development potential may be integrated in the planning and implementation of future interventions by the GIZ and its cooperation partners. The desired impact is to improve the quality of life and strengthen the resilience of rural livelihoods in Western Mongolia in the short-, medium- and long-term, providing an understanding and supporting the implementation of sustainable adaptation strategies centred around income generation.

### **3 Conceptual framework**

In order to formulate effective adaptation strategies, one must first clarify what is meant by vulnerability, resilience, and adaptation and disambiguate these key terms. This is important to produce a common understanding of the sustainable livelihoods approach and build a foundation on which potential interventions are built. Desirable pathways for the development of tourism and horticulture respectively, are assessed by analysing their potential and challenges to their successful implementation. The overall conceptual framework applied to this study thus combines three main analytical concepts: (1) adaptation, (2) livelihoods and (3) analysis of development potentials.

#### **3.1 Vulnerability, resilience and adaptation**

Following the Intergovernmental Panel on Climate Change (IPCC), we take (climate change) vulnerability to mean the exposure and susceptibility to harm and the inability to cope and adapt to short-term and longer-term impacts of environmental variation, influencing the functioning of communities, households and individuals (Awal, 2015; IPCC, 2014a). However, the concept can also be applied to the more general social-economic context of rural livelihoods (ILO, 2017). Vulnerability is described as a pre-condition arising from a progression of components, namely root causes, dynamic pressures and unsafe conditions (Islam & Lim, 2015; Joakim et al., 2015). Root causes of vulnerability include historical and social structures, demographic and political developments, as well as ideologies of political, religious and economic systems. All of these contribute to limitations on access to power and resources which create the conditions under which different groups of people (based on race, class, gender, age, disability or health status) are able to respond to and recover from short-term shocks and slow onset changes (Awal, 2015; Chandler and Reid, 2016; Goodrich et al., 2019; Islam & Lim, 2015; Joakim et al., 2015; Pasteur, 2011). Adding to the root causes, reduced access to resources is influenced by regional and global pressures and their interaction with local conditions. These dynamic pressures manifest themselves not only in lack of knowledge, skills and training of local actors but also in the functioning and conditioning of markets, policies and institutions. Lastly, unsafe conditions result from temporal and spatial attributes of a specific locality, expressing themselves in shock events, natural hazards and long-term changes in the climate and environment. Taking into consideration these three components, it becomes clear that vulnerability is influenced by multiple interacting factors that may change dynam-

## 12 Conceptual framework

ically and sometimes drastically over time (Awal, 2015). This understanding of vulnerability highlights the contextual complexity of communities' risk exposure and the way in which it is embedded in larger systems.

While vulnerability provides a framework to understand the processes leading to increased risk, the concept of resilience is used to explore the options for limiting the potential negative impacts of arising stressors. Being resilient entails the capacity of a system to cope with events or trends, whilst embracing responses that help to maintain the essential function, identity and structure of that system, in addition to maintaining the capacity for adaptation, learning and transformation (IPCC, 2014a). Critical thresholds in social-ecological systems may be reached, for example, as a result of the climate crisis, when simply resisting or recovering in order to maintain or return to a desirable level of functionality are no longer viable options as some changes become inevitable (Fernández-Giménez et al., 2017). Under such circumstances, resilience should be defined as the capacity of communities, groups and individuals to proactively engage in decision making and adapt to longer-term changes by undergoing at least some degree of deeper transformation in efforts to maintain their well-being (Pasteur, 2011). Embracing an understanding of resilience as the combination of the capacity to resist, recover and transform provides a holistic framework for thinking about adaptation.

Adaptation is hence envisaged as how resilience is built through various actions. In general terms, refers to the adjustment process of a system (community, group or household) to changing conditions (climatic, structural or otherwise) with the aim to better cope with and manage risks and respond to opportunities to ensure the long-term functioning of the system (Awal, 2015; Smit & Wandel, 2006). The ability of actors within that system to manage and adjust to changes is defined as their adaptive capacity, which in turn is connected with their resilience; "the more adaptive capacity within a system, the greater the likelihood that the system will be resilient" (Engle, 2011, p.651; IPCC, 2014a). Adaptation can be further divided into two sub-categories – incremental and transformational – where the former seeks to maintain the integrity of a given system, while the latter promotes changing a system's fundamental attributes in response to change (IPCC, 2014a). Whether an adaptation strategy or action stays incremental or becomes transformational depends on the degree of adjustment. This can range from agricultural systems using different cultivars in response to water shortages, to changing entire activities (e.g. switching from pastoralism to crop production or vice versa), to completely giving up agriculture and pursuing other livelihood activities. Adaptation practices commonly involve the modification of an existing strategy or the diversification rather than abandonment of activities (e.g. through comple-

mentary income sources), suggesting that adaptation often occurs in response not only to direct climatic effects but simultaneously aims to improve overall well-being based on established livelihood systems (Awal, 2015; IPCC, 2018b; Reed et al., 2013; Smit & Wandel, 2006). Adaptation, like vulnerability, is ultimately shaped and constrained by systemic influences, ranging from local access to resources, to the institutional environment, to larger scale economic and political processes (Engle, 2011; Smit & Wandel, 2006).

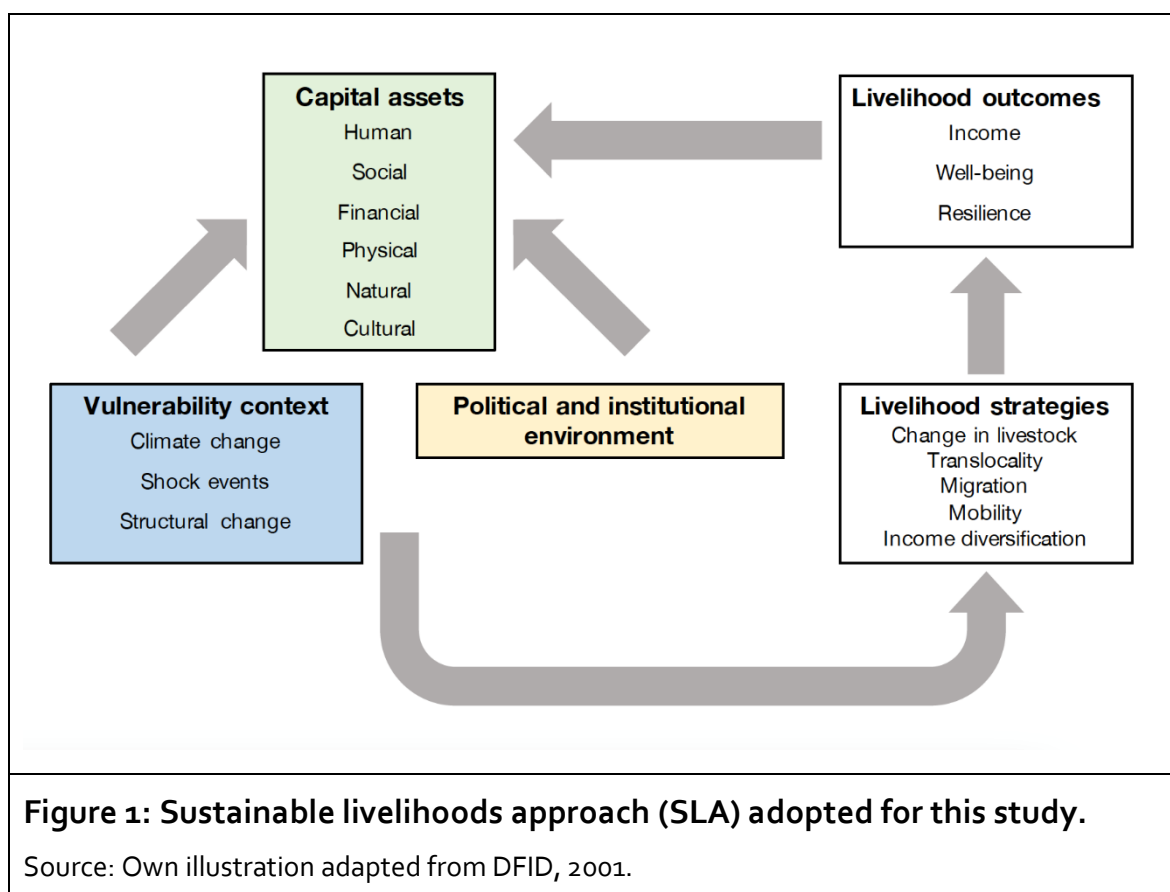
Some adaptation activities may potentially provide short-term benefits to certain communities, yet there is a risk that the same activities may scrutinise the longer-term adaptive capacity of that very same community, or others, depending on the spatial and temporal scales of those activities (Engle, 2011; Magnan et al., 2016). So-called “maladaptation” encompasses a range of potential actions in response to the climate crisis that may in fact “lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future” (IPCC, 2014a, p.1769). The aim of climate change adaptation is to reduce the long-term vulnerabilities arising from climate change, which includes addressing its underlying causes (Brown, 2011). In response to the risk of maladaptation and the fact that some adaptation activities may in fact lead to negative impacts in the medium- to long-term, certain criteria have been formulated under the umbrella of “sustainable adaptation” (Barnett & O’Neill, 2010). These are as follows: (1) ensure that adaptation initiatives do not contribute to an avoidable increase in greenhouse gas (GHG) emissions, (2) promote adaptation initiatives that are economically and socially equitable, (3) avoid high economic, social, or environmental costs when compared to alternatives, (4) build flexibility into the initiative by not committing capital and institutions to trajectories that are difficult to change in the future and (5) increase the incentive to adapt by involving local communities, economic, and policy bodies into the planning and implementation process. Maladaptation, however, is not limited to the context of climate change.

While the aforementioned criteria have to be evaluated with regards to localised nuance and difference, they serve as an overall guideline for avoiding the pursuit of maladaptive strategies (Magnan et al., 2016). The focus of sustainable adaptation should not ultimately rest on responding to a specific event only, but on strengthening a system’s overall resilience with regards to its economic, social-cultural and environmental dimensions (Magnan, 2014).

### 3.2 Sustainable livelihoods approach

One way of improving the quality of life and strengthening the resilience of rural populations may be found in the promotion of complementary income sources (Wan et al., 2016). Diversification through the promotion of additional sources of income is categorised as a so-called livelihood strategy under the sustainable livelihoods approach (SLA). SLA is a people-centred, holistic and dynamic framework that builds on actors' existing strengths, links macro- with micro-levels and is strongly connected to economic, social and environmental sustainability. It entails an analysis of capital assets (incl. natural, physical, financial, social and human), the political and institutional environment, the vulnerability context as well as livelihood strategies and outcomes, all of which are interrelated and strongly influence each other (DFID, 2001). The approach is illustrated in Figure 1.

People require a range of different capital assets combined to achieve positive livelihood outcomes, including their enhanced resilience. For the purpose of this study, the capital assets of existing rural livelihood systems in Khovd and Uvs Province are described drawing from secondary data and interviews. Of particular relevance for this study (i.e. the analysis of tourism as a source of income), is a sixth cultural component added to the capital assets. A descriptive assessment of relevant aspects of the institutional and policy environment thus processes and structures which determine the access of the target group to different assets are reviewed, mainly drawing upon secondary literature. A more in-depth analysis of institutions and policies with regard to horticultural production and tourism activities as income sources is conducted within the analysis of development potential described in the following chapter. The vulnerability context is assessed by using both existing literature as well as insights from participatory data collection. This serves to underpin relevant historic and recent events and changes with local perspectives. Currently practiced adaptations to the documented changes by the rural population are described, including diversifying sources of income. Finally, by evaluating the current livelihood outcomes, emphasis is put on the vision for future livelihood pathways, including complementary income sources, drawing on findings from participatory data collection.



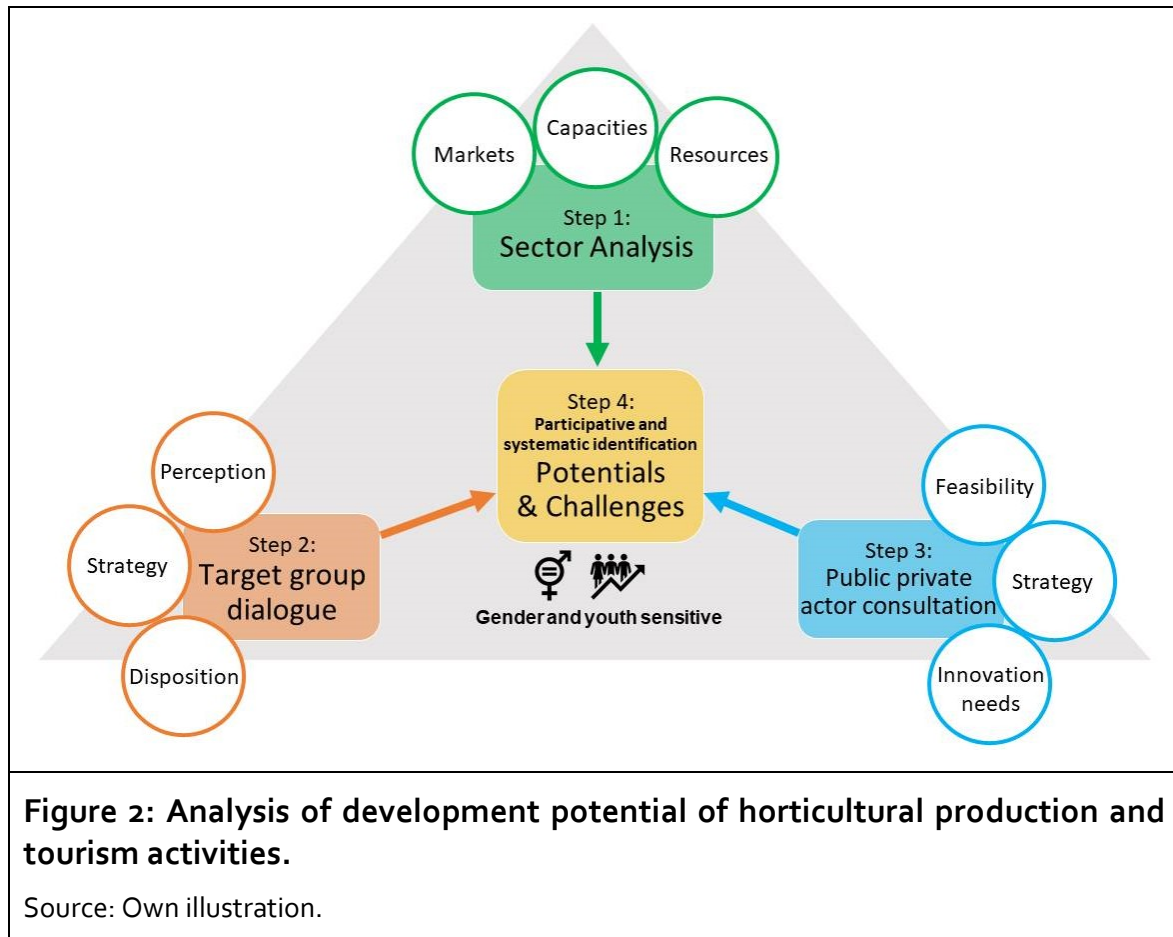
The findings of the study inform the understanding of different strategies, thereby serving to evaluate specific activities which create income. These are aligned with context-specific aspects of local livelihoods. Importantly, conclusions are drawn from a range of different livelihood systems studied in the two areas. These are then used to define the scope of stakeholders considered for interventions.

### 3.3 Analysis of development potential

To analyse the prospects for development of income sources, the study follows a four-step model. Step 1 (sector analysis), step 2 (rural population dialogue) and step 3 (stakeholder consultation) are used for the collection, step 4 (identification of development potential and challenges) applies to the analysis of relevant data.

Relevant information was obtained from literature, statistical data, the local population and different stakeholders from the public and private sector. Prior to drawing conclusions on the development potential and challenges for generating additional income from horticultural production or tourism activities, a triangulation is applied by integrating the findings from steps 1-3, as recommendations and

entry points for potential interventions shall be based on a common understanding of the development potential and challenges (Figure 2).



A conceptual framework was created. Building on this, implications for the development potential in the two sectors are strongly centred around a firm understanding of sustainability. Sustainability in horticulture draws on the general principles of “sustainable agriculture”, defined as “practices, techniques, and approaches that contribute to food security and safety, sustained economic viability, enhanced environmental quality, and higher quality of life for farmers, farm workers, and society as a whole” (Nair et al., 2014, p.51; Weil, 1990). In that sense, sustainability in horticulture, as much as tourism, should be considered an activity with many possible pathways to sustainable development (Carolan, 2006; Granatstein & Kupferman, 2008; Pretty, 2008). Sustainability in horticulture is strongly interlinked with organic farming designed to leave a minimal impact on the natural environment. It is also concerned with the development of communities, by incorporating production and distribution methods that serve to improve overall human well-being (Sumner 2009, p.462). It further integrates biological

and ecological processes, minimises the use of non-renewable resources and makes productive use of the knowledge and skills of farmers and people's collective capacities, emphasising the improved utilisation of existing resources (Pretty, 2008, p.451).

Horticulture and sustainability are inherently interwoven. Hence, the recognised need to introduce holistic approaches and pathways for adapting to climate change strongly resonates with the general principles of environmental sustainability in horticulture. It also entails addressing underlying vulnerabilities, which affect the social well-being of different community members. This includes farmers, workers and society at large, ranging from the continuity and stability of employment opportunities to the health benefits of local consumers (Gosetti, 2017, p.10; Sumner 2009, p.476; Williams et al, 2019, p.132). Consequently, sustainability in horticulture implies taking a systems approach and moving from "farm-level practices and microeconomic profitability to [a concept] of the entire agricultural system and its total clientele" (Allen et al., 1991, p.37). In doing so the linkages and complex dimensions of economic, social and environmental sustainability can be adequately adhered to, ensuring the long-term sustainability of the entire system and translating into an improved quality of life for communities.

Sustainability in tourism, much as in horticulture, should be understood as a continuous process of improvement in terms of environmental and social standards. As such it embodies the idea that modern tourism should act as a vehicle to enable sustainable transformation processes on multiple fronts, rather than "sustainable tourism" being a finite or in fact achievable state (Andriotis, 2018; Balaš & Strasdas, 2019; UNEP & UNWTO, 2005). Understanding tourism in the wider context of sustainability acknowledges the responsibility to maintain an area (community or environment) in such a way that enables exercising the same tourism activity indefinitely. Hence, there should be no harm or degradation done to the local natural, physical and human environment, all the while addressing the needs of visitors, the industry and host communities, taking full account of current and future economic, social and environmental impacts (Higgins-Desbiolles, 2018; UNWTO, 2013).

In response to the three sustainability dimensions, two of the main goals of any tourism activity should be to increase the overall quality of life and resilience of local communities (Balaš & Strasdas, 2019; Raimundo, 2017; UNWTO, 2013). Sustainability in tourism and a host community's overall well-being are strongly interrelated and influenced by local residents being invested in activities and given the possibility to actively shape the development of the sector (Uysal et al., 2015).



## 18 Conceptual framework

This in turn creates positive spill-over effects on the satisfaction of incoming visitors. It may therefore be useful to consider quality of life as a guiding principle for simultaneously incorporating the economic, social and environmental dimensions of sustainability.

## 4 Methodology

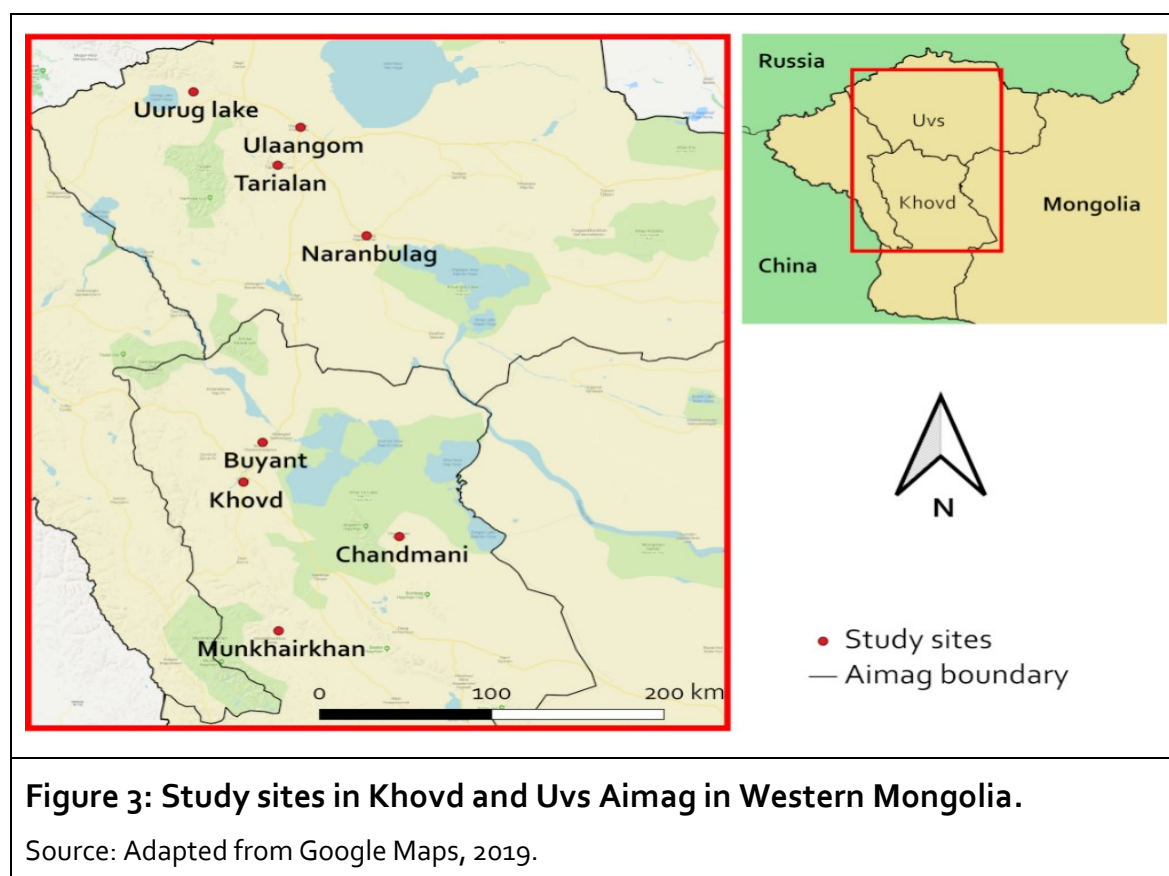
As described above, this study serves three purposes: to deepen the understanding of existing livelihoods, to elaborate on development potential and challenges for the local population to engage in the horticultural and tourism sector in consideration of prevailing livelihoods, and to provide context-specific recommendations and entry points for the improvement of current practices and the possible development of sectoral activities with the primary aim to generate inclusive employment opportunities. In conjunction, the desired outcome is to strengthen the resilience and improve the quality of life of rural livelihoods through income diversification. To achieve this, mainly qualitative and participatory research tools were applied under an explorative approach.

### 4.1 Study area in Western Mongolia

For the study region, two provinces (Aimags) in Western Mongolia were predefined by the commissioning partner due to current initiatives and prospective projects. The priority for research assigned under the two aforementioned GIZ programmes is centred around the assessment of results regarding development potential and challenges along the horticultural and tourism value chains. These relate to the broader aim of promoting employment and sector development in consideration of local livelihoods.

Interviews with government representatives and other stakeholders were mainly conducted in the provincial centres Khovd and Ulaangom (Figure 3). Additionally, field research in each Aimag was carried out in three selected sites represented by smaller-scale administrative units (Soums). These sites were defined in collaboration with the cooperation partner, responsible ministries and specialists according to the following criteria:

- Sites of particular interest to horticultural production and tourism activities.
- Sites including a Soum centre and summer pastures nearby for interviews with the local population including herder families.
- Sites located in a buffer zone of a conservation area (nature reserve, national park or strictly protected area; in Khovd within the defined cluster of the Supporting Protected Areas for the Conservation of Ecosystem Services (SPACES) programme).



## 4.2 Project timeline

During the preparation phase from May to July 2019 in Berlin, consultations with technical and regional experts provided fruitful information and led to an initial conceptualisation of the research agenda. In combination with desk studies, the research team then proceeded to amend the research design considering this knowledge. After the arrival in Mongolia in August, one week was spent in the capital Ulaanbaatar for interviews with key stakeholders, including the cooperation partner, key line ministries of the Mongolian government among others. In these discussions, detailed and context-specific information was acquired and research sites discussed. At the beginning of the field research, predefined interview guidelines were tested and amended. The subsequent data collection was conducted by all team members divided into smaller sub-groups and with the support of local translators. Two and a half weeks were spent in each Aimag and the process was consistently implemented in both provinces. By the end of the field research, two workshops were held with specific target groups with the objective to triangulate preliminary results. Data collection, clearance and analysis were then finalised in Ulaanbaatar in the weeks thereafter. Preliminary results and recommendations were presented during a concluding presentation before the team's

departure by the end of October. Lastly, recommendations were redefined and the final report submitted to the cooperation partners.

### **4.3 Methods of data collection**

For the collection of primary data, a mixture of qualitative research methods was used to obtain rudimentary information as well as the perceptions and visions from the different stakeholders. Some tools were specifically tailored to the interviewees' characteristics to ensure the data collection was appropriate for each target-group and thus most effective in retrieving information. This included, for example, semi-structured interviews with local experts and multi-stakeholder focus group discussions (FGDs) with key stakeholders. Each semi-structured interview was facilitated and translated by an experienced translator with local and/or subject expertise. For FGDs and workshops, two experienced translators were present with one translator facilitating the session and the other providing simultaneous translation in order for the research team to be able to follow up on statements provided by members of the target groups. Data triangulation ultimately assured the validity of the research findings through cross verification (incl. with secondary literature) and the capture of different dimensions of the same phenomenon.

#### **4.3.1 Qualitative methods**

- *Key information interviews* (n=137) were adopted as the main research technique due to their correspondence with the study's explorative approach in terms of gathering specific knowledge on a given topic. Predetermined questions were utilised by the research team so as to guide participants through semi-structured interviews.
- *Focus group discussions* (n=3) were used to explore and understand gender-based labour divisions, motivations and visions of the participants to engage in the two sectors as well as the possibilities for additional income generation activities along the two value chains. The FGDs constituted a valuable investigation tool as they enabled the assessment of different perspectives within a specific group on the same issue and allowed every interlocutor to get involved in the debate.
- *Stakeholder workshops* (n=3) were held with college students (16 participants) and experts from horticultural associations (5 participants) in Uvs Aimag to the end of the primary data collection phase. The purpose was to

create a platform for active discussions and for voicing key concerns, to collect concentrated data and to elaborate on synergies. Moreover, the findings from the workshops not only deepened the researchers' understanding but also enabled the triangulation and validation of preliminary research results and recommendations. A concluding workshop was held with various stakeholders to validate the findings in Ulaanbaatar.

- *Various observations and informal conversations* accompanied the field research and were valuable in as far as they served to complement the formal data collection by perceived behaviours, settings and interactions.

### 4.3.2 Sampling

Within the two study sites, opportunity sampling was applied due to the geographical features, namely the sparse distribution of settlements and low population density of the selected study area and the resulting travel duration in between locations. For interviews with mobile herder households (including women, men, and youth), summer pastures located in proximity to the affiliated Soum centres were visited, while members of the sedentary and semi-sedentary population were invited to participate in the research in the Soum centres. The sampling of the different groups of rural population was done in a gender- and youth-sensitive way, so as to provide an adequate representation of needs and requirements of women, men and multiple generations. Key interviewees were selected according to their background and relevance for the study, as well as their availability and willingness to participate.

### 4.3.3 Stakeholders

Various stakeholders with expertise in the horticultural and tourism sector at international, national, regional and local levels were consulted as visualised in Table 1:

Table 1: Stakeholders with expertise in the horticultural and tourism sector.		
Stakeholders	Interview Label	Categories
Academia	A 1 – A 11	Research institutions, University professors, educational staff
Government	G 1 – G 37	Soum and Bagh governors, Department of Food and Agriculture, Department of Environment and Tourism, local governmental institutions
International Organisations	I 1 – I 14	International Organisations, development agencies
Local population	L 1 – L 34	Farmers, herders, citizens
Organised groups	O 1 – O 22	Community-based groups, cooperatives and associations
Private sector	P 1 – P 13	SMEs, tourist agencies, <i>ger</i> camp owners
Tourists	T 1 – T 12	Foreign tourists
Source: Own elaboration.		

The *target group for potential future interventions* under this study is defined as the segment of the rural population situated in Khovd and Uvs Province which could benefit from future project and programme interventions by the GIZ and its cooperation partners based on the recommendations of this study. This definition thus includes mobile, sedentary as well as semi-sedentary households. On the basis of extensive and detailed literature review, the research team identified four differing actor groups among the rural population according to their specific characteristics:

1. Pastoralists not involved in tourism;
2. Pastoralists involved in tourism;
3. Subsistence-oriented Soum dwellers; and
4. Individuals or groups mainly active in crop production.

A detailed overview on the interview partners can be found in the Appendix of this study (Annex 9).

### 4.4 Data analysis

Detailed transcripts were created for all interviews. The qualitative data were evaluated with the software programme MAXQDA 18. A coding index (both deductive and inductive) was developed in alignment with the previously defined topics. This enabled an in-depth examination of the collected information. For exploring possible contradictions or information overlaps during the field research, the study team triangulated the data and exchanged information in regular team meetings. Additionally, quantitative secondary data including various policy reports, academic journal articles and statistical data were obtained from relevant government agencies and research institutions as well as from existing platforms and reviewed and considered where necessary to complement the qualitative research.

### 4.5 Scope and limitations of the study

The selection of interviewees through convenience sampling raised the question of biases. Therefore, the research team undertook continuous efforts to reflect on the selection of the interview partners, both internally and with local partners. Furthermore, restrictions in communication due to language barriers and errors in translations posed a challenge. By selecting and briefing skilled interpreters and by triangulating collected data, efforts were made to minimise potential errors. Notwithstanding elaborate preparations prior to engagements with the different target groups, the extent of the facilitators' interventions during the interviews and working sessions nevertheless determined the nature of the data produced.

Initially, the research proposal outlined the idea of pastoralists as the main single target group under the assumption that complementary or alternative income opportunities in agriculture and tourism could lead potential beneficiaries to the decision to reduce their livestock numbers and consequently lower pressure on rangeland and reduce the impacts of overgrazing. An adjustment of this initial scope was necessary as during the preparation of the project it became clear that defining pastoralists as the single target group would have excluded other parts of the local population, many of whom have been found to show an urgent need for complementary income sources. In addition, the general definition of agriculture includes livestock husbandry. Utilising the term agriculture would have consequently implied that the research also investigates livestock husbandry and its relations, overlaps and crossovers within the sector. This would have put consid-

erable attention on the rural livestock economy and thereby only complemented a wide range of already existing research and extensive literature on this topic. In line with the specific mandate given by the cooperation partner, a clarification and thus modification from an unspecified and broad conceptual understanding of agriculture was consequently implemented by applying the term horticulture, to avoid misunderstandings and clearly define the scope of the study, explicitly excluding an analysis of the development potential of animal agriculture.

Another important condition was to focus primarily on a set and mix of qualitative methods and research questions, as this was considered by the project counterpart as a way to investigate relevant issues that were so far lacking broader analysis (e.g. the relationship between additional income opportunities and the livestock economy). This decision was also reached due to already existing findings by other research groups and professionals regarding selected horticulture products and value chains and studies related to a specific type of winter greenhouses.





## 5 Livelihoods description

### 5.1 Capital assets

The livelihoods approach is founded on the assumption that people require a combination of assets – including human, social, financial, physical, natural, and cultural capital – in order to achieve positive livelihood outcomes. Thus, the aim of a livelihood analysis is to gain an understanding of these capitals in order to identify deficiencies and build on existing strengths (DFID, 2001). Hence, the characteristics of these capitals of the rural population in the study region are described here, drawing on literature as well as conducted interviews.

#### 5.1.1 Human capital

Human capital represents the skills, knowledge, ability and opportunity to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives (DFID, 1999).

#### **Household size and composition and its link to labour power, workload and poverty**

A household's size and its composition are important characteristics in understanding a livelihood system, as it is one factor determining the amount and quality of labour available (DFID, 1999) and can be interlinked with poverty (NSO, 2017). In Mongolia, the incidence of poverty increases with household size, which may be explained by a simultaneous increase in dependency ratio – the ratio of the number of non-working family members (e.g. children and elderly) to the number of all household members (NSO, 2017). In Mongolia, the dependency ratio is especially high in rural areas, with the Western region (42.8 %) ranking highest among all regions (NSO, 2018). The national average poverty rate stands at 29.6 %, while it is 24.2 % and 36.8 % in Uvs and Khovd respectively (NSO, 2017, p.12). This information comes from the National Poverty Profile 2016 which defines the poverty rate via a per capita threshold consumption index (poverty line) based on the cost of basic needs which stands at 146.100 Mongolian Tugrik (MNT) (NSO, 2017, p.10) while the minimum wage stands at 240.000 MNT per month in the public and private sector since 2017 (LehmanLaw Mongolia, 2016). Moreover, poverty is linked to age and gender. Concerning age, the poverty rate is especially high among households whose heads have an average age between thirty and forty – potentially due to an increase in the family size and thereby an increase in

dependency ratio at this stage of their lives. Regarding gender, female-headed households tend to be poorer in urban areas while the opposite is true in the countryside, equating to near parity at the national level (NSO, 2017).

*"For the success of herders what matters is labour availability." (L7 – former herder)*

Several farmers and herders in the study region stated a lack of labour power or high labour-intensity as a challenge to their income activities (A5, G31, G37, L3, 5, 6, 7, 16, 17, 33, O9, O19, P5). However, there were vast differences in the households' abilities to cope with this issue: While some interviewed households were able to make use of their own human capital by employing up to seven family members (L17), others benefitted from their social capital by asking friends and more distant family to help out (L8). In turn, more wealthy households used their financial capital for hiring up to 50 seasonal workers (P6), whereas other households did not receive any support at all (L6, L18). Meanwhile, especially single mothers (G21) and herder women seemed to deal with a higher workload indicating a gendered labour allocation among typical households (O21):

*"Women are working harder than men as they have more duties around the house, men are only grazing the cattle." (L3 – female herder)*

Limited labour power may be one reason why tourism and horticulture are not practiced more extensively. This is described in detail in Chapters 6.2.2, 6.2.5, and 7.7. Moreover, a lack of labour power and an already high workload were named as reasons by some households' inability to get involved in new income activities (L3, L6, L15, L34). This was illustrated by a herder woman who stated that she would be interested in horticultural production or working as a veterinarian (she holds a university degree) but had no time next to herding (L3). Another way of overcoming a lack of labour power was meanwhile seen in collaboration e.g. in cooperatives (G19, G37) which will be further elaborated in Chapter 6.3.

### **Seasonality of employment, labour opportunities and power, workload**

The poverty in Mongolia is distinct in that it "varies per season" (NSO, 2017, p.27). The main income activities in the region, livestock and crop production, "play a large role in this" (NSO, 2017, p.27) as *"they are both very seasonal"* (O18). Horticulture and also tourism were found to mostly offer employment in summer and for (low-paid, on-demand) wage work in the peak season (harvest in autumn), while in winter, only few find employment (G24, P5). In the horticultural sector, this is mainly due to a lack of means to prolong the growing season through e.g. heated greenhouses or processing facilities. In the tourism sector, the lack of win-

ter shelter for tourists and the harsh climatic conditions present another limiting factor (see Chapters 7.3.4 and 7.7). As the head of the Department of Labour and Social Welfare in Khovd put it: "The main challenge is seasonality: opportunities to run businesses throughout the year." (G9)

Thus, farmers, tourism operators and herders often need to find other activities in winter, but opportunities are limited (G14, O3). Especially for women it is *"hard to find jobs outside the agricultural season. Maybe cleaning in restaurants or small canteens"* (O8).

As described in Chapters 6.1.4 and 7.3.4, labour opportunities as well as the workload and labour power in studied sectors is seasonal, as both *tourism operators* (mainly in summer) and *farmers* (mainly in autumn) need support from families or external workers in peak times. However, in some periods available labour power was limited in the community. This was also linked to the seasonality of mobility:

*"Seasonality is key, e.g. there is lots of movement in summer – out of Soums for harvest and agriculture in the countryside, but less in winter. (...) Some Soums of Uvs should be empty now". (I12)*

Moreover, *herders'* workload varies significantly according to seasonal and daily patterns (Cooper and Gelezhamtsin, 1994) with "herder households being busiest in spring", while the "period between late autumn and early winter is considered the least busy period" (Baast and van de Fliert, 2014, p.32). However, as work allocation is gendered, women are busiest during the milking season in the summer months and have most time from May to June and from September to November, while men are busier in winter, preparing shelters (Cooper and Gelezhamtsin, 1994; Baast and van de Fliert, 2014). These workload schedules are of high importance, especially when considering the feasibility of reaching herders and farmers (e.g. through extension services) and for assessing the compatibility of potential complementary income sources regarding time and labour power availability for such activities (Baast and van de Fliert, 2014).

### **Existing levels of skills, knowledge, formal education and their value for livelihood**

According to the latest Mongolian Poverty Report, "education is an important factor that contributes to living standards. Those with little or no education are more likely to be engaged in low-paid labour-intensive jobs that require little professional skills and thus, are more susceptible to hardships. In addition to better employment opportunities, the better-educated have better health awareness

and higher social capital along with other dimensions of well-being” and a lower likelihood of poverty (NSO, 2017, p.31). Indeed, while the poverty rate is 44-53 % among those with lower than upper secondary education, it is about 19-27 % among technical and vocational-educated households and drops significantly lower to 1-11 % among tertiary-educated households (NSO, 2017, p.32).

Disadvantages due to an insufficient level of education were also observable among interviewed households as some of the households labelled as among the poorest either never received any training or education beyond or did not complete secondary school. They thus claimed to have limited employment opportunities (L7, L18, L19, L31). The circumstances of women were found to be even more precarious in this regard, as jobless women were reported to be arranged to marry (L7) and experienced higher likelihood of suffering domestic violence (O21). Meanwhile, the horticultural sector was found to pose comparatively low entry barriers in terms of required formal education (O21), as a majority of interviewed farmers never obtained a higher education or ever received (vocational) training (see Chapter 6.2.5). However, results of engagement in this sector were mixed with some being able to sustain their livelihoods farming while others were not able to cover their living expenses through farming (G31).

Meanwhile, entering jobs outside of the rural context, especially for the current young generation in the study region, a higher formal education beyond secondary school was found to be of utmost importance for them. While the mandatory 9-year attendance of public school already provides a solid basis and a high youth literacy rate of 98 % among men and 99 % among women (UNICEF, 2018), several of the interviewed households’ children wanted to attain further formal education according to them or their parents (G16, G17, L1, 2, 3, 6, 16, 17, 35, O5) and become “*very educated*” (L3). Almost all of the parents seemed to be supportive of this and did not insist that their children follow their family’s “traditional” profession, as e.g. one farmer stated:

*“We do not want our children to become herders or farmers because the children decide by themselves. If the children acquire knowledge this is very good.” (L2)*

The increased aspiration of youth to achieve a higher education has several implications for rural households and communities, shaping or even determining their livelihood strategies like mobility, translocality and migration, and strongly affecting their financial capital.

It is reported that children’s education is among the reasons for a decreased mobility and increased sedentism around Soum centres of some herder households (G4, L6, L12). Moreover, it presents a main reason for translocality of wom-

en, who move to the Soum centre with their children during winter (G21; Ahearn, 2018b). Both arrangements have negative impacts. The first might “cause over-grazing of pasture around centres” (Mearns, 2004, p.27) and the latter leads to unemployment of female (G21, I12, O3) and increased physical and psychological burden of male herders (Ahearn, 2018b). Moreover, the pursuit of tertiary education spawns increased translocality or migration to Aimag centres, the capital, or even abroad (A2, I5; IOM, 2018a). While this may lead to higher individual educational levels, it can on the other hand lead to a “brain drain” (human capital flight) and drain of labour power from rural areas in the region (I12). For example, the return rate in Chandmani Soum only accounts for 30-40 % of the university graduates (G16). However, it was also observed that in sporadic cases, rural communities benefitted when migrated individuals returned with new business ideas which created employment for themselves (and others) in their home region (L8, P6; TransRe, 2018).

The wish of youth to attain a higher education oftentimes poses a financial burden on rural households. In the study area, several herder and farmer households named education costs among their main expenses – again especially poor households with many children (G21, L2, L3, L7, L8; NSO, 2017; SDC, 2017). Despite this burden, a majority of interviewed parents were supportive of their children’s educational aspirations and felt that despite worries about their affordability (L8) they must support them:

*“Education is quite expensive but as parents, we feel it’s our duty to make it possible for them [our children], so somehow we manage it.” (L7)*

Indeed, almost all interviewees concerned succeeded in managing to financially support at least one of their children in attaining the desired higher education.

Despite these “success stories” regarding education and considering the financial burden thereof, there appears to be a mismatch of education attained and employment opportunities available in the study region, which seems to be a major cause of youth unemployment, and thus makes the obtained education of no or only limited value for sustaining one’s livelihood, as the head of the Uvs Youth Federation stated:

*“The first thing that comes to mind is the wrong choice of career. A lot of the young people and women that come to my office hold a university degree. But their careers and majors are all very common: everyone has a degree in accounting or from private law schools. So, there is a surplus of those professions at the labour market. Those jobs are not available and then people stay unemployed.” (O21)*

This was also confirmed by two governors who explained that rural communities were in higher need of applied, practical (handcrafts) labour rather than office jobs (G12, G21). A Tarialan school principal confirmed this, however also noticed a new trend:

*"Yes, there is a mismatch. But there is a backwards trend lately. Children from herder families realise: 'Why should I waste my parents' money to go to university and study something to then not find a job in this field', so they turn to herding again a little more lately." (A9)*

Considering the demographic characteristics of a comparatively young Mongolian population, with 63.77 % being under 35 years of age and 30.94 % aged 0-14 years (NSO, 2018), the described education-employment mismatch might turn into a larger societal issue in the form of increasing unemployment in the future if not properly addressed.

The prevalent existing mismatch would also explain the statements of participants in a youth focus group discussion in Khovd, who answered to the question what the perfect job would be for them:

*"In fact, we just want to work in what we have specialised in." (L20)*

In several cases around the study region, this was however not the case, as people were employed in different fields than their higher education would suggest – with e.g. a teacher (L8), a former engineer and his son who is an aviation engineering graduate (L33) working as farmers. In other cases, however, when no employment could be found, it was reported that *"people bribe their way into employment (...), it is a dominating factor in contemporary Mongolian society"* (G21). When asked about how to resolve the education-employment mismatch, public promotion of more practical professions e.g. through stipends was brought up, which e.g. the Uvs Youth Federation is already engaged and seeing first successes in (O21). However, when targeting young people for income activities in the horticulture and tourism sector, it is important to understand how the decisions and perceptions of youth are shaped regarding professional decisions (A9) which is thus further described in Chapter 5.2.

### **Health and nutrition status, access to health services**

Besides being of intrinsic value, health is required in order to make use of one's human capital and therefore any of the four other types of assets (DFID, 1999). In this light, it must be noted that the state of health in Mongolia appears to be relatively low in comparison to other countries in its country group (IHME, 2017). Poor health is particularly prevalent among the poor population (Lindskog, 2014;

Pitschmann et al., 2013). Although provision of universal, free primary health care services exists, it was found to be “unable to accommodate the health needs of especially poor urban in-migrants, the unemployed and mobile herders in remote provinces” (Lindskog, 2014, p.880) due to low quality or lack of services and limited accessibility in rural areas (Dorjdagva et al., 2017; SDC, 2017). Moreover, the expectation of improved access to better health services is a main driver of rural–urban internal migration in Mongolia (IOM, 2018a). Causes for health issues in rural Mongolia and the project region include the physically taxing work e.g. of herding – especially for women and during winter (Ahearn, 2018b; SDC, 2017), natural calamities like *dzud*<sup>2</sup> events (Lehmann-USchner & Krähnert, 2017) and dangerous working conditions in artisanal mining (G32; NSO, 2016). Moreover, nutrition seems to be affected by seasonality as “the composition of food distinctly varies depending on the season with more intake of dairy products in summer, more vegetables in autumn, more meat products in winter and a lean period in spring. The autumn is considered to be relatively abundant of all seasons, the food consumption is at its highest at this time of the year.” (NSO, 2017, p.27). While a rural resident reported to have already developed coping strategies against this (L15), shortages of foods in Soum centres in winter remain an issue (A1).

Adding to this, a main issue seems to be an increased prevalence of lifestyle-related chronic diseases with many linked to diet (JICA, 2017a; Pitschmann et al., 2013; UNDP, 2016, p.20). The diet in the study region among other Aimags has been described as unbalanced due to the fact that “the consumption of some nutrients (especially animal fats) is as high as twice the recommended intake while the consumption of other nutrients (especially vegetal fats) is as low as one-third of the recommended intake” (Lehmann-USchner & Krähnert, 2017, p.1320). Both can have severe health impacts, particularly among children (ibid.). Moreover, several interviewees in the study region complained about the low quality of crops provided on local markets, especially imports from China and Russia (L8, O16). These are often imported without quality control (JICA, 2017a) and were even labelled a “*national health problem*” (O16).

Food self-provision also plays a significant role, which can have both positive and negative impacts on different groups of the rural population: “Farming food crops improves the nutritional situation of small-scale herders and non-herding

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<sup>2</sup> *Dzud* typically refers to extreme winter conditions characterised by sudden and lasting heavy snow fall and/or extreme cold temperatures. *Dzuds* can also be characterised as the coupling of extreme winter weather with succeeding drought events during summer. Chapter 5.3.2 provides an explanation of the impacts of *dzuds* on the rural economy



households. In contrast, the provision of meat and dairy products through animal husbandry has mixed effects. Thus, encouraging (...) households to undertake farming – even on a very small scale – appears to be an effective channel to ameliorate” problems associated with the diet (Lehmann-USchner & Krähnert, 2017, p.1320).

Positive effects of crop production and self-consumption, as well as an increased awareness on the importance of a balanced diet were also observed in the study region, as several farmers pointed out the richness of sea buckthorn in vitamins and its consumption in winter for health purposes (L9, L15), calling it the “yellow doctor” (L25).

*“Mongolians are starting to understand that they also need nutrition from vegetable products and not only meat – 20 years ago, when I started, Soum people had never tried or wanted to try vegetables before... This has changed, today people are more open to it and see a need to consume it (...). Women are the future of Mongolia as they raise our children, so it is important that they know about healthy food, and a healthy lifestyle... We have to support them with that!” (O20 – Component Leader of the SDC VEGI Project)*

The Swiss Development Cooperation (SDC) “VEGI” Project – which is further described in Annex 2 – reports various positive health effects and “countless success-stories” of horticultural production and self-consumption, especially among women who also receive training in vegetable cookery (O20), which households in the study region might not be familiar with yet:

*“We are using more vegetables since we started planting them. Ten bushes with black currant are only for our children. It is very important to have a healthy diet. But how to cook vegetables to keep the nutrition, we don’t know.” (L26 – female farmer, Naranbulag)*

Moreover, SDC noticed an increased empowerment of concerned women and in some cases even a reduction of domestic violence (O20) – an issue which is “improving” but “still persistent” (G21), especially in Khovd, but all over Mongolia (NSO & UNFPA, 2018, p.13). Altogether, health showed to be a vital issue, notably for households with low labour power, where illness of just one member can cause economic struggles (L18).

### 5.1.2 Social capital

As Ichinkhorloo (2018, p.386) argues about the importance of social capital in the Mongolian context, “social networks, kinship relations (...) and ‘survival col-

laboration' helped people survive through the socio-economic changes and radical reforms of the post-socialist period [which created mass unemployment and the disappearance of guaranteed safety nets by the state and collectives] by relying on 'traditional' economic relationships such as reciprocal help, free gifting, kin and social networks, and trust." The argument goes further, stating that it has even "created the foundations for the diverse economic practices found in contemporary Mongolia" as "these practices served to distribute wealth equally and to sustain livelihoods after the government's 'failed' privatization in the 1990s and are continuing to produce and govern diverse economic practices". Meanwhile, Ulambayar and Fernández-Giménez (2019, p.104) add that "without adequate social capital, it may be difficult to achieve more complex social and ecological outcomes like improved livelihoods" and Upton (2008, p.175) argues that "social capital, with trust as a key dimension, is an integral part to improved natural resource management".

However, recently, "other accounts of post-soviet civil societies [including in post-socialist Mongolia] figure a lack and erosion of social capital (...) and a growing individualism" (Upton, 2008, p.176). Moreover, kinship networks seem to be "weakening" and growing inequality has turned them into "patron-client relations" (Mearns, 2004, p.27). While it is unclear if outside interventions can build social capital (Mearns, 2004, p.11; Upton, 2008, p.176), its erosion or the creation of "negative social capital" (i.e. exclusion of the poorest households from a target group of an intervention, limiting of herders' mobility by an outside intervention) should at least be avoided (DFID, 1999, p.22).

These descriptions echo some of the outcomes of post-socialist development interventions. Upton (2008, p.181) reports that while the World Bank "Sustainable Livelihoods Project" (2002-2006) and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ – former name of the GIZ) "Nature Conservation and Bufferzone Development Project" (1995-2002) in Mongolia positively affected livelihoods of herder households which participated, excluded households experienced a "declining flexibility in access to grazing". Both projects focused on the promotion of biodiversity conservation through livelihood diversification through tourism development and vegetable growing, as well as the creation or strengthening of groups and collective action and trust (social capital) building amongst stakeholders. Hence, these projects serve as important lessons-learned for the GIZ and should inform future interventions. Unintended destruction of social capital through donor interventions was also reported in a focus group discussion with cooperatives during our research as one of them stated that "*international donors shouldn't divide old cooperatives, like it has happened (...). They split up the coopera-*

*tive and now after the project is over, the smaller ones don't exist anymore".* Instead, one should rather *"not only support creation of new but also work with existing structures"* (O17). Building on this, the observed characteristics of existing social capital in the form of networks and connections, as well as trust in the study region are described in the next chapter.

### **Networks and connectedness**

Networks and connectedness, especially among family and kinship, play an important role for households' livelihoods and income generation in the study area, as almost all interviewees were in some form supported in their endeavours by close family either through provision of labour or knowledge. This was especially true in times of hardship (e.g. sickness), shocks (e.g. losing livestock) or a lack of human capital (e.g. lack of labour power) and in the face of lacking governmental support during these incidences, close or extended family was helping out (L8, L33). In this regard, remittances also played an important role, especially for poorer households (L7, L20). Networks of support also extend beyond family ties, including e.g. former classmates (L22), politicians (L25), and wealthier friends (L20). Another account exemplifies the consequences of a lack of social capital, as one herder household who had lost its livestock in a *dzud* stated:

*"We do not have enough money to live and we cannot afford the clothes and food for our children. My husband is an orphan and thus we do not receive any support from family members."* (L11)

While the use of informal networks is quite prevalent, only a few interviewees are part of a formal group, oftentimes expressing scepticism about membership: While some openly stated that they would not like to be part of a group – mainly naming bad experiences with or bad functioning of local groups as a reason (I2, L2) – others were simply not interested, did not know who to join or how to organise, or did not see a need for it (L2, L3, L34, L35). A government official confirmed that *"they [farmers] prefer to work alone"* (G6).

### **Trust and individualism**

A lack of trust was brought up several times as an obstacle to joining formal groups (e.g. cooperatives – see Chapter 6.3) or doing business together with others (e.g. between companies and suppliers. Not knowing if one's money is handled well collectively is one reason for mistrust (G35, I5, P5). The head of a cooperative concluded:

*"Nowadays a lot of people want to work together but they do not know if they can trust the other members. There is a trust issue." (O12)*

This however, was not unanimous among all participants. Other interviewees stated that trust was not an issue for collective business endeavours (I7, O15). Meanwhile, a trend was observable that people preferred working together with others whom they already know well, like kinship, or longstanding organisations with a good reputation (L2, L3, L31, O12, O15).

Meanwhile, several interviewees noted a rising level of individualism especially among the younger generation (O3), corruption, elite capture, and loss of trust and social cohesion. An elderly woman, who lost all of her livestock in a *dzud* and now lives on governmental support, described this phenomenon as such:

*"The level of societal support has decreased, today the focus lies now on the lives of wealthy and individual people. Under socialism everyone had equal opportunities and less fortunate families (like I am now) were taken care of. Today there is a big difference between wealthy and poor people, e.g. herder awards are being given out to young, influential and rich herders who do not even herd themselves but buy the jury. People's personalities are changing for the worse. I wish that all young people will have equal opportunities, but it feels like that only those who are hard-working and fortunate enough will be better off, that is to improve their own individual quality of life but not that of others. I hope that in the future there will be a society without corruption." (L6)*

An organic farmer confirmed that *"most people are only interested in short-term profits"* (P2), while a tourism specialist added that *"people want to run the business on household level, not as community. This is the main problem"* (G34). Reported cases of elite capture and increased conflicts over natural resources are further described in later chapters, while corruption is described in Annex 2. Meanwhile Mearns (2004, p.19) argues that not only their limited availability but also a lack of social capital is causing conflicts between herders (also with so-called "new herders") over natural resources.

### **Potential entry points for strengthening of social capital**

Throughout our research it became apparent that cooperatives in horticulture and community-based tourism (CBT) groups in the tourism sector have positive effects on the cooperation between and connectedness of its members as well as the social cohesion of communities in general.

For CBT groups (see Chapter 7.7) both members, managers and international donors agreed that – next to more income – *"a growing network"* (I6, O11), *"social-*

*ising*" (O5) and *"providing support to other members"* (O6) were among the main advantages of being involved in CBT. The manager of the Integrated Mineral Resources Initiative (IMRI) supported CBT *ger* camp in Tarialan stated that they were *"aiming at one common goal"*, were a *"tight group"* and *"cannot be separated"* (O14) while another CBT manager noted: *"Neighbours also help each other, but even more when they are a group"* (O5).

The same was found for cooperatives, as the heads of horticultural cooperatives in Uvs stated that supporting each other in countless ways and mutual celebration of holidays were important advantages (O17). Further, they stated that they would like to foster more *"social participation"* in the future and that *"members should be voluntarily involved in humanitarian activities like environmental protection and trash management so that people know about them and that we could reach out to more people in the community"* (O17). In this regard, Sabatini et al. (2012, p.1) find that *"cooperatives are the only type of enterprise where the work environment fosters the social trust of workers and the related accumulation of social capital"*. Another potential might be found in the observation that poorer households in the study region were more willing to cooperate with others (O12), with reports about positive outcomes and experiences for them (O12, L18).

All in all, in the face of the above-mentioned signs of an erosion of social capital, future donor projects in the study region could try to aim at building a basis for strengthening of social capital beyond the promotion of income generation for individuals. In this, *"third parties could act as 'trust brokers' or catalysts in social capital formation"* (Upton, 2008, p.187). In the project region, this might be achieved through the promotion of CBT groups and cooperatives as they have shown signs of positive benefits to that effect.

### 5.1.3 Financial capital

There are two main forms of financial capital: Regular inflows of money (from earned income, pensions, or other transfers from the state, and remittances) and savings (in cash, bank deposits or liquid assets such as livestock), or when negative, in the form of debt or other liabilities. In this regard, access to financial services like loans plays an important role (DFID, 1999). While the former (income) is only mentioned here in qualitative terms and further elaborated in Chapter 5.4.5 (income diversification), the latter (savings and loans) is described in the following chapter.

### The role of livestock

In Mongolia and in the study region, livestock plays an important role for income generation and as a store of financial capital and its possession was almost ubiquitous (see Table 3, Chapter 5.4.5). 61.2 % of the population in Western Mongolia raise livestock, which is the highest regional rate in the country. The region also exhibits the highest rate of goats held for cashmere production (NSO, 2017, p.36). Indeed, not only herders but also interviewed *ger* camp owners and farmers possessed up to 400 livestock. This exceeds ownership among some dedicated mobile herders, and in some cases, livestock even creates more income than the expressed “primary” household profession. For pastoralists, livestock oftentimes not only serves as physical capital to produce e.g. cashmere, wool, meat or milk, but further functions in other roles, such as a means of finance or insurance (NSO, 2017), e.g. as a kind of saving’s account (IFAD, 2018, p.2). Livestock was further described as flexible currency that can quickly be exchanged into cash or other purposes such as: for paying back a loan (O5), buying products needed on a daily basis, paying children’s education cost (G4), sale (L7), as wedding gifts (L15) as collateral in order to receive a loan (L12). It also served as a way to invest earnings e.g. by a *ger* camp owner (P3). Due to its important, flexible role, the assumption that additional income leads to a reduction in livestock numbers might be false. The opposite may even be true – as additional income is often invested in additional livestock – as stated by some interviewees and further described in Chapter 5.4.5.

### Seasonality of finances, income and expenses

*Herders’* income unequally distributed throughout the year, “reflecting the pastoral cycle” (Sneath, 2012, p.485), as it is highest in spring due to cashmere sales and then from autumn on, no more cash is generated with income being lowest in winter. Moreover, this “seasonal market income (...) does not coincide with needs” (ibid.) as expenses are highest in autumn due to preparations for the upcoming winter and the start of school (ASIA, 2017; O7; SDC, 2017). Thus, this mismatch leads to an increased “need for loans” and “running up of debt” or need to sell livestock – “in the new neo-liberal economy, timely money became a scarce resource” (Sneath, 2012, p.485; see below). Meanwhile, financial seasonality also affects local *farmers*:

*“All of the farmers get bank loans for inputs in spring. Most of them sell 80 % of their crop products in autumn and repay the bank loans. I want them to get out of such a financial circle.” (O22)*

The intrinsic seasonality of farming might render it unattractive as a complementary or alternative income source, as a herder, who had lost his livestock in a *dzud* and switched to farming, stated:

*"When one first gets into farming then it's uncertain how the yield will be. It's a seasonal thing. One plants in spring and only gets the results and sells in autumn, that's why I wasn't sure about farming in the beginning and often thought about going back to herding."* (L6)

The Food and Agriculture Organization of the United Nations (FAO) (2017a, 7) concludes that access to credit is crucial for both many herder and farmer households in winter and spring when incomes are reduced. The role of cooperatives and associations in resolving these issues by e.g. combining herding, farming and processing, or engagement in contract farming (O16) and *"generating income during the whole season"* (O18) is discussed in Chapter 6.3.

### **Seasonality of prices**

As described in Chapter 6.2.3, a lack of product diversification among farmers as well as a lack of storage, greenhouses and processing could prolong the growing season or durability of products. Farmers almost all produce the same products and offer them at the same time on the same markets, rendering the price very low during harvest season in autumn and very high in spring (A5). Similar patterns can be found with herders' livestock products, as SDC (2017, p.18) finds that "the fluctuating price on animal products is one of the main factors affecting the lives of herders, with the price of milk and dairy highly fluctuating upon the seasons" and the widespread destocking of livestock in autumn allowing herders to prepare for the winter. However, this seasonality creates a massive influx of offerings at the market contributing to a decrease of the value of meat (ASIA, 2017, p.32). Herders ranked price instability of animal products among the most severe risks they faced (before *dzuds* and other ecological threats) (SDC, 2017, p.92).

### **Seasonality of poverty**

All in all, the afore-mentioned seasonality of income opportunities, prices, labour availability and expenses appear to cause poverty to "vary per season" (NSO, 2017, p.27) with especially winter being the critical time due to the lowest average income and solutions particular for this season being demanded (O20). While adaptation strategies were said to be successful in weakening the impact of seasonality on general welfare – as it does not vary as strongly as income (NSO, 2017, p.27) – they often came with the cost of debt (O18).

## Loans and debt

Much of the literature suggests that “the trend to take a loan is increasing year by year in Mongolia”, with almost half of the population having some kind of loan (NSO, 2017, p.40). Indeed, in the study region, several farmers, herders and *ger* camp operators and cooperatives were confirmed to have taken up a loan. While many got it from the local Soum development fund (G12, G36, L18, L23, L24, L25, L29, O11) – which provides loans without any interest which have to be paid back after some years and are then used for the next round of funding at the Soum level (G26) – others received them from banks (G13, L9, L12, O1, O5, P2), donors (L17), government support programmes (L5) or other sources (L8, P3, P8).

Especially among herders, the rate of households taking up a loan is high. One national socio-economic study (including Khovd) found that “81.6 % of herder households took bank loans and leasing services”, with some even taking several (SDC, 2017, p.75). One interviewee from an international donor organisation stated that “*there is almost no herder family that hasn’t taken up a credit*” (I1). However, also almost “all of the farmers get bank loans (...) every year” according to the local Water User Federation in Khovd (O22). The reasons for taking up a loan are various: expanding one’s income activity (L24) or starting a new one (L6, L8, L9), a lack of income (L5), high expenses (e.g. for children’s education) (O5) and seasonality (mismatch between times of income and expenses) were mentioned by interviewees.

While loans can foster business activities, they can also lead to an increased indebtedness among rural households – especially herders. A recent study found that more than 95 % of surveyed herder households in Sukhbataar province are in debt (ASIA, 2017, p.41). This might be similar in the rest of the country “due to herders facing repetitive shocks caused by climate change and the difficulty to adapt to an open market economy” (ASIA, 2017, p.41). In the study region, the head of the Uvs Department for Environment and Tourism stated:

*“The main instrument to foster employment are loans, but this sometimes leads to debt. Normally business owners aren’t in debt, they generate income and can pay back. Those who depend on social welfare, unemployed people are in debt.” (G28)*

The FAO (2017a) found drought-struck farmers and herders have the most trouble paying back loans in Mongolia. This was showcased by two interviewees in the study region – both having lost their livestock in a *dzud* – one an elderly widow living on pension and state support who has to spend two-thirds of her monthly financial means on amortising her debt (L6), and one household who had a loan in



## 4.2 Livelihoods description

the form of new livestock but lost it again and thus is now even more indebted than before (L11).

At the same time, however, actors in the region seem to long for more loans, as a frequently mentioned issue by interviewees of all groups (herders, farmers, *ger* camp operators, cooperatives) concerning financial services, was a limited access to or availability of low interest loans (G35, I2, L17, L18, O16, O17, P1), either due to unaffordable interest rates offered by banks – “2.5 % is too high” (G10, L17) or a lack of collateral (L22, O16, O17; FAO, 2017a; SDC, 2017). This problem was particularly pressing for herders with few livestock and small-scale farmers (A5; FAO, 2017a). Especially women (of those groups) face difficulties in acquiring a decent loan as the “*assets of the family are registered on the man*” (O20 – Mongolian Women’s Association). The lack of access to low-interest loans was reported to impede the uptake or expansion of income activities (G35, L5, L10). The need to take up a loan appears to stem from the fact that oftentimes “*profits are not enough for a bigger investment*” (P3).

### **Suggested improvements of financial services by the population**

Several farmers stated that they had received a low-interest loan from the Soum development fund for starting or expanding their business (see above). However, several Soum governors explained that this fund is insufficiently equipped (see Annex 2), especially for larger loans like winter greenhouses (O16), and thus a higher volume was needed. However, a Bagh governor (G37) and a Crop Science teacher (A5) brought up the idea of “*subsidies, for greenhouses, irrigation, etc. and for growing something in general*” instead of “*loans through which they [farmers] get into debt*”. This appears especially reasonable in the light of reports about youth (G28) and women groups (O8) who preferred to indebt themselves through loans.

### **5.1.4 Physical capital**

Physical capital comprises the basic infrastructure and producer goods needed to support sustainable livelihoods (DFID, 1999). Their condition is briefly described in this chapter.

#### **Transportation – Infrastructure and affordability**

As the study region is a “*remote area*” (A5, P5), the low road density, poor or even unpassable road conditions (especially in winter) and rising transportation costs pose an issue to various aspects of livelihoods. This is the case in rural Mongolia generally (FAO, 2017a, p.9) as well as the area studied (O4, O14).

Mearns (2004, 25) e.g. argues that this “perpetuates and intensifies inequality” as poor households are not able to devote as much money to transportation which “might impede [their] mobility and connectedness, and most likely even health”. Moreover, the National Poverty Report (NSO, 2017) finds that poverty rates are higher in rural than in urban areas, and within rural areas higher in the remote countryside than in Soum centres. For mobile herders, transportation is an essential necessity of particular importance (SDC, 2017) and the role of motorised transport has risen (FAO, 2017a). However, a “retreat of the state from rural areas (...) constrain their adaptation strategies to climate stressors” (Marin, 2008, p.90) like *dzuds* (FAO, 2017a, p.42), and possibly contribute to overgrazing (Mearns, 2004, p.27). The negative impacts of weak transportation infrastructures on income activities in the horticultural and tourism sector are described in Chapters 6.2 and 7.3, respectively.

### **Means of production**

In the study region, farmers noted a lack of technical equipment (greenhouses, tractors, storage, harvesting devices, and processing equipment) which could reduce the high manual workload and allow for more value creation (see Chapter 6.3.1). Herders also stated their need for more technical equipment, e.g. for wool processing (G32, O15). However, herders’ main physical capital is their livestock (NSO, 2017). The importance of livestock as physical capital is showcased by the fact that “*a herder has to stop herding when they have less than 100 livestock*” (O6). Herders often have no other opportunities than engaging in irregular part-time jobs like construction work when they (are forced to) quit herding, as they often do not have any knowledge on or means of production for other income activities (O6). Physical capital further comprises of housing (shelter), water supply and sanitation, electricity, as well as information and communication technologies (ICTs) (DFID, 2001). As they are not necessarily directly linked to income activities but still have a high relevance for livelihoods and well-being overall.

### **5.1.5 Natural capital**

#### **Water availability and use**

The current ratio of water use to the amount of available water resources in Mongolia and the study region is uncertain and reports are contradictory (compare UNDP, 2017, p.9 with ADB, 2017, p.11 and Uvs RBA, 2015 with Uvs RBA, 2019). The amount of surface water is only estimated every five years by a “simple survey” (JICA, 2017a, 92), while “the level of knowledge on groundwater is even

lower” (ADB, 2017, 7). For example, in Khovd, no groundwater studies have been conducted during the past 50 years (G18).

Nonetheless, based on available data from 2013, it is estimated that Khovd and Uvs only use a small share of overall existing water resources (ADB, 2017). Considering estimated environmental flow rates of rivers and groundwater renewal rates, the amount of *sustainably* useable water is strongly limited (ADB, 2017). Some estimates indicate the sustainable threshold will likely be exceeded in Uvs Aimag given a dry-year scenario in 2021 (JICA, 2017a, p.101). Moreover, the regulation and management of water sources is said to be “inadequate”, as groundwater extraction requires only a simple permit by the National Water Authority and surface water use is largely unregulated. (UNDP, 2017, p.9). Moreover, sources agree that the demand for water in the region has been and will be significantly increasing, with estimates of an increase of around 60 to 70 % until 2021 (ADB, 2017; Uvs RBA, 2019). The ADB (2017, p.11) concludes: “It is likely that there will be some constraints to meeting the [water] needs of socio-economic growth in the future.” While the issue of water shortages in horticulture is described in Chapter 6.2.1, it was observed that water resources in the region are strongly affected by climate change (A4).

### **Impacts of climate change on water**

Availability of and access to water resources in the study region is limited both by climate change and conflicts which increase the vulnerability of rural livelihoods. Classified as semiarid to hyper-arid, precipitation in the study region is already low (UNDP, 2017). 90 % of precipitation evaporates, while only 10 % form surface runoff and recharge rivers and groundwater (JICA, 2017a; UNDP, 2017). Climate change exacerbates this, as the average annual precipitation has decreased by 7 % during the past 70 years and it is projected to decrease by another 4 % until 2040 (UNDP, 2017). Meanwhile, the precipitation variability has been increasing (US Aid, 2017), summer precipitation decreasing – when moisture is most needed (UNDP, 2017, p.9). Summer precipitation is expected to decrease further by up to 5-10 % in Western Mongolia by 2100 (MoET, 2014). Along with precipitation, surface water resources in the region are mainly (ca. 70 %) fed by about 96 % of Mongolia’s glaciers, meaning river runoff peaks in June and July as glaciers melt (Khovd RBC, 2010). Water volumes of rivers are highly unstable and only providing limited flow for half of the year. Thus, the impact of seasonal fluctuation of water resources in agriculture and livestock farming is already a “non-negligible factor” (JICA, 2017a, p.91). However, this will likely be exacerbated by climate change – the glacier area decreased by 22-28 % over the past 60-70 years

in Mongolia (ADB, 2017; UNDP, 2017;) and even up to 55 % within 20 years in parts of Uvs (Uvs RBA, 2019). This trend is expected to continue and lead to local runoff water supply increasing in the short-term, but decline after the peak in the period 2030-2050 leading to severe droughts in the long-term. This scenario was echoed by literature and local scientists (A6, A7; ADB, 2017; MoET, 2014). This could have implications for the relations between water users.

### **Water shortages and conflicts**

Although national level water use for farming has a share of 40 %, livestock 19 %, industry 25 % and domestic supply 16 % (ADB, 2017), in Khovd “80-90 % go into farming” (G18), while in Uvs 75-83 % are used for farming, 12-23 % for livestock and only around 2 % for other users like industry (Uvs RBA, 2015; 2019). Thus, the study area exhibited an atypical case where farmers are by far the main water users, especially of surface water (Baranchuluun et al., 2016). Likely due to natural and climate change induced scarcity, interviewed farmers almost all reported a lack of water availability and accessibility (see Chapter 6.1.3 and 6.2.1) as a challenge to their livelihoods. This was cited as a cause of conflicts, especially between up- and downstream farmers (A5, G9), particularly in dry periods (A4, G18, L28), alongside unsustainable use of water by some farmers (Khovd RBC, 2010).

Herders – who use both surface and ground water (SDC, 2017) – are also severely affected by climate change (G24, G25). One local academic stated that “herding is more vulnerable than farming” (A4). Indeed, Marin (2008) and FAO (2017a) find a severe decrease in number of wells and waterpoints “in the pasture” since 1989. Moreover, in a study across nine Aimags including Khovd, 38.5 % of herders reported water scarcity, making it the most-mentioned observed change in the rangeland during the past 20 years and one of the most regularly mentioned risks for herding (SDC, 2017). The water shortage for herders – by shaping their mobility (ibid.) – might contribute to overgrazing and conflicts between herders and farmers, as the ADB (2014, p.2) finds that as “the drying up of water sources is progressing rapidly (...) the concentration of livestock near the diminishing number of water points intensifies pasture degradation”. Moreover, several local interviewees reported that “herders bring livestock closer to water sources near the Soum centre” (G18, L6), causing conflicts with farmers (G18, L6, L13, L25). The access to water might even be a reason for the tendency of herders illegally entering strictly protected areas out of necessity, as a park ranger in Chandmani explained (G17). Further conflicts over water were observed between small-scale farmers and larger wheat companies (see Chapter 6.1.3). Moreover, concerns about an

extremely wasteful use of groundwater in the urban Khovd Aimag centre (per capita twice as high as in rural Soums) were raised alongside concerns over the Durgun hydropower plant which changed the water regimes of local rivers and hindered access to water for nearby farmers (Khovd RBC, 2010). Future water conflicts may also arise. The River Basin Administration (RBA) in Uvs was reported to have tried to prevent mining companies from attaining land licences in declared safety zones around rivers. This was due to a growing concern of increased water usage and pollution observed in other Aimags (O22). Localised pollution, caused by the use of pesticides (G18, O22), harmful substances discharged by the local wastewater plant in Khovd Aimag, livestock grazing in hygienic zones, and the washing of cars in rivers were also seen as threats to the quality of water sources, potentially affecting the health of residents and quality of farming produce (Khovd RBC, 2010).

### **Land**

Mongolia is the least densely populated country in the world, with agricultural land (mainly rangeland) occupying about 70 % of its area (JICA, 2017a). All land is state property, but citizens may lease it for a fee for periods between 15-60 years (JICA, 2017a, p.75); for details about land laws see Annex 3). As opposed to the situation in and around Ulaanbaatar and Central Mongolia (O20), most interviewees in the study region stated that they had good access to agricultural land and only minor bureaucratic hurdles were mentioned with regards to tourism infrastructure (see Chapters 6.2.4 and 7.7). However, access to and availability of land with fertile soil close to water sources appears to be limited (for some groups) due to unequal (or at least unclear) allocation mechanisms (see Chapters 6.2.2 and 6.2.4), natural degradation and overgrazing (see Chapters 5.4.1 and 6.2.1) or conflicts (see previous chapter). Thus, land resources do not yet play a significantly limiting role for income activities in the study region, but may do in the future.

#### **5.1.6 Cultural capital**

The SLA incorporates societal norms and beliefs as part of the structures and processes that shape livelihood systems. Aside from this, while culture is acknowledged to have an influence on how assets are transformed into livelihood outcomes, culture is merely thought to account for “unexplained” differences and “the way things are done” in communities (DFID, 2001, pp.29, 33). Due to particular relevance for this study, the authors therefore amended the SLA in its established form to incorporate a sixth asset component: cultural capital.

Cultural capital is described to include two main forms: an embodied state (systems of knowledge, beliefs, customs, and norms) and an objectified state (heritage buildings, locations and sites, artistic products, performances, rituals and festive events), the accumulation of which results in cultural traditions and subsequent material outputs (Bourdieu, 1986; Daskon & McGregor, 2012; Throsby, 1999). Cultural traditions and outputs are recognised to play an important role in achieving livelihood outcomes as they are firmly integrated into everyday lives of people and the satisfaction of their needs. They supply knowledge, skills, performances and artistic products transmitted across generations in response to the environment and history of communities. They also promote cultural diversity and human creativity and provide a sense of security, organisation and status, linked to emotions like pride and identity, which can serve to sustain livelihoods (Daskon & McGregor, 2012). While the recognition of cultural capital may support the formulation of more appropriate strategies for engaging with people, cultural traditions and practices should neither be romanticised, especially those perpetuating discrimination and inequalities. In rural communities, despite rapid changes, cultural capital in all its forms continues to exist besides growing external influences, and may even sustain livelihoods in ways that modern economies cannot (ibid.).

As both intangible and material manifestations of cultural capital can serve as vehicles to achieve livelihood outcomes, thus influencing the vulnerability, resilience and adaptation pathways of local communities, attention should be paid to their susceptibility to erosion. This is particularly the case when localities and their communities are exposed to development interventions. It must be understood that livelihoods are sustained by more than just income generation and increased resilience. Quality of life and communal well-being are strongly influenced by cultural identity and the recognition, reputation and respect thereof. By searching for cultural strengths and opportunities in tangible and embodied forms, traditions and practices may serve as assets for revitalising rural areas, including when utilised for the generation of incomes surrounding those traditions and activities in a local setting (Kim & Kim, 2009; Daskon & McGregor, 2012). Adding culture to the rank of established capital assets thus supports this understanding.

Tangible and intangible assets in traditional Mongolian culture are closely intertwined. Central to customs and norms are beliefs about sacred sites, including mountain tops and specific natural formations in the landscape. One of the most visible elements associated with places that are believed to be sacred are so called *ovoo* – rock stacks marking such places – which can be found in many locations across the country attracting visitors. The annual *naadam* festivals – annual sport competitions held in summer – are another important element of cultural practice

taking place on the Aimag and Soum levels (Kaplonski, 2010). The attraction of visitors that visit *ovoos* and attend festival, including tourists, is growing in response to a revival of traditional customs that seek to reinforce what constitutes Mongolian cultural identity, or “Mongolness” (Kaplonski, 2014; Sneath, 2014).

Women in particular are considered to be the preservers of “Mongolness”, though they are sometimes barred from attending certain events or even access certain localities, while some ceremonies are reserved only for women (G13; Kaplonski, 2014). Historically, the cultural representation of women has been limited to those of higher social status, limiting the participation in spiritual life of those outside the nobility (UNIFEM, 2002). The division of women and men underwent some changes in recent decades, yet some cultural traditions remain in place (e.g. the eldest son receiving a spare *ger*), indicating that gender-oriented cultural norms may potentially continue to have an influence on asset endowments (I10; Paddock & Schofield, 2017). At the same time, women in both Khovd and Uvs Aimag produce and provide many of the typical hand-made items (e.g. wool clothing) based on their traditional knowledge about how to process certain natural goods (e.g. from animal products), which in turn is used to generate household income (I9, L24, L27, O8).

Another example for an important cultural capital is the *ger*, a traditional form of housing made from felt and wood, and one of the most iconic symbols in Mongolian culture. The *ger* bears cultural relevance both as a tangible object, which is reproduced by each generation using traditional knowledge and materials, and by conveying principles of traditional living. With its relatively small average size and ability to be moved and reassembled at another location, it has a direct cultural impact on the everyday lives and relationships of its inhabitants (Paddock & Schofield, 2017, p.18). This form of housing has undergone gradual transformation, with many *gers* nowadays featuring solar panels thus providing access to electronic appliances and amenities such as televisions and refrigerators.

In Khovd and Uvs Province specific elements of people’s cultural capital are promoted by various stakeholders to be used as sources of revenue, specifically in the tourism sector.

*“[There is one touristic tour that] includes everything: an ethnic show, traditional performance, milking of the animals, mother tree. The mother tree grows on our land and is one of three mother trees in the country. It is sacred and people come to worship it. There is also spring water which is very healthy. Also, we have a historical hill where an ethnic battle took place and we can guide you there. So we offer everything: nature and history and way of living and culture.” (O14)*

These include the usage of partly stationary or especially assigned gers for operating tourist camps (G5, G32, I4, O14, P9), festivities (A8, O3), and in particular show casting the “*nomadic lifestyle*” and its cultural features (G2, G5, G11, G26, G30, I8, I9, I10, P4, P7), by for example, renting out livestock (horses and camels), providing local foods, performing musical events and selling handicrafts:

*“Each year during naadam festival in July, 30 Swiss and 20 Dutch tourists visit the herders. 20 herder households provide five gers each, tourists take a five-day route from ger to ger. In each ger, a different theme will be covered: Mongolian life-style and culture, production, cattle, mini-naadam, traditional ceremonies, beautiful nature, ethnic performance.” (O3)*

Nomadism is being cited as a potential source for tourism development mostly by the government, international donors and the private sector (see also Myadar, 2006, p.191). Already existing examples of such marketisation of herders’ way of life are described for Tarialan Soum, Uvs Province, and Munkhkhairkhan Soum, Khovd Province (see Chapter 7 for details on the relevance of cultural capital in the tourism sector).

Lastly, cultural identity is strongly connected to place and its environmental features. Traditional culture in Western Mongolia, in particular surrounding mobile pastoralist practices, is increasingly influenced by climate change, leading to disruptions in the endowment of tangible and intangible assets. Some scholars therefore attain a considerable degree of uncertainty to the future of Mongolian pastoralism and its long-standing cultural features amidst the advancing climate crisis (Adger et al., 2012; Fernández-Giménez et al., 2017; Post, 2016).

## 5.2 Political and institutional environment

“Structures and processes” within the livelihoods framework are the institutions, organisations, policies and legislation that shape livelihoods. The aim of analysing them is to identify the influence of the political and social institutional environment on livelihoods, and how a framework can be created that supports multiple livelihood strategies and promotes equitable chances for all (DFID, 1999). Thus, relevant policies, strategies and legislation of the government and executive agencies, as well as activities of donors, women and youth associations – which frame the development of livelihoods in the region and determine the everyday income generation of local households – are described in Annex 2. It is of utmost importance that future GIZ projects are coordinated with and built on these existing and on-going efforts, experiences and lessons learned. Meanwhile, the ob-



served influence of social institutions (i.a. power relations and societal prestige) on livelihood strategies are described here in the following chapter.

### **Power Relations – Gender roles**

Oftentimes, the choice of which income activity to pursue is shaped by power relations regarding gender and cultural or societal norms, beliefs, and expectations on the role of men and women in society (DFID, 1999). As the “traditional economy and mobility of rural Mongolia is based on a gendered division of labour, whereby men are responsible for pasturing livestock, while women remain closer to the home, milking livestock and processing (...) for household use and sale as well as caring for children and the elderly” (Ahearn, 2018b, p.2), it is highly relevant to consider if and how this (still) holds true today.

Indeed, women in the study region were said to often “*live in the traditional way*” (L3, O8) and “*especially in rural areas (...) are responsible for housekeeping while men deal with the 'outside'*” (G21). This role however seemed to be manifested more broadly in society: Interviewees reported that there is a gender gap in employment at a disadvantage to women, despite their (average) higher level of education. Reasons for this could be found in the double-burden of productive and reproductive labour, which poses a higher workload on them (G21, L3, L24, O8), and further because “*society forces them to marry and have children very early*” (G21). Moreover, there are reports that some companies prefer hiring men due to issues surrounding maternity leave. Women were only reported to be preferred in service jobs (G21, O20) and further the risk of poverty was said to be higher for single women than men (L7).

Table 2 further illustrates which professions are associated with which gender according to a female *ger* camp owner (P5).

**Table 2: Which gender is associated with which profession?**

For further understanding of the societal perception, a female *ger* camp owner (P5), who is also active in the mining sector and at the same time head of the local Women Association, gave her opinion on which jobs are associated with which gender. While this is not representative for the entire population, it gives an insight into perceptions that might exist more broadly in society (the views were confirmed in a second interview, though).

Profession	Who?	Why?
Herding	Men	Women only have a supporting role
Horticultural production	Men	Work is tough in the beginning; later, women can take over
Market seller	Women	It's a good choice for them because it's easy to sell stuff
Tourist guide	Men	Because tourist guides often need to ride a horse and only men can do that
<i>Ger</i> camp manager	Men	Because the husband tends to lead the business – I am an exception
Service jobs like cleaning	Women	They can move quickly and are cleaner, additionally, our tradition forbids men to clean the floor

Source: Own illustration based on key informant interview P5.

This again highlights the importance of a deeper understanding of livelihoods to identify barriers to employment for different groups, as gender stereotypes were found to be prevalent: *"Our third daughter is like a boy – she is very hard-working."* (L26)

In this light, it is of high interest whether labour allocation is also gendered in the tourism and horticulture sector, which will be described in Chapters 6.1.4 and 7.3.4 respectively. Despite the persistence of "traditional" gender roles in the study area, there were signs of them loosening-up, as *"in recent years, more fathers are at home while women go to work"* (G21) and *"the share of women in decision-making positions is increasing"* (O8). Overall, more equal sharing of labour was found to be prevalent among *"households which are struggling financially [where] both men and woman work in vegetable production"* (O3). Such a household confirmed: *"Of course, both of us work on that field."* (L11)

A breaking-up of traditional roles is also described in recent literature with regards to the absence of herder women from the *ger* in winter, as they often move to the Soum to live with their young school children during this time. While this often leads to unemployment or low-paid employment (I12, O3, O8), women can in some cases also benefit through gaining new knowledge, social contacts, mobility and even business ideas (L8; TransRe, 2018). Thus, “male experiences of absence may give rise to new ways of performing gender and making a living from mobile livestock husbandry in rural Mongolia” (Ahearn, 2018b, p.3).

### **Perception and prestige of different jobs among rural society, especially by youth**

The choice of profession can moreover be influenced by their perception and prestige in society (DFID, 1999). Thus, here it described what interviewees – especially youth – stated about the attractiveness of working in herding, farming, mining, and tourism.

Throughout interviews in the study region, (mainly by older adults) the narrative was perpetuated that most of young people do not want to live in the rural area and pursue tough physical work like herding or farming, but that they would rather want to live in the city, attaining a high education, pursuing an office job, and living a more “easy” and “modern” life there (A2, A4, A9, G4, G12, G28, I12, L1, L6, L7, L31, O3, O21). While some argued that this was due to their “laziness” (G12, O21), others argued that lifestyle, and more entertainment and opportunities were among the reasons (I12, O3). However, their career choices may also be shaped by societal prestige, as the head of the Uvs Youth Federation explained:

*“In the past, those jobs [lawyers, accountants] were very prestigious, people of those professions enjoyed a high status [and] were regarded as successful. But in reality, construction work is paid much more than teachers. But there is still this mindset that you want to become a lawyer.” (O21)*

A school principal agreed:

*“It has been like that for a long time. Before, everyone wanted to become a teacher or public employee. Same now with bureau jobs at companies.” (A9)*

As described in Chapter 5.1.1, several authorities agreed this might be a main cause for the “mismatch between education of youth and the job market” and thus a high youth unemployment rate (A9, G28, O21). Either way, a majority of interviewees (both parents and youth) believed that youth should become “very educated” (L3) and try to find a “job” in the city (L6). Parents believed they should try to be supportive of this (A2) and indeed almost all interviewees, even poorer

households, tried to allow their children to follow their professional dreams despite the high education costs mentioned in Chapter 5.1.3:

*"I spent my whole life in order to be able to get my kids educated. They all went to university and are now accountant, doctor, construction engineer and economist."* (L31)

However, support for their children to pursue such careers might not only stem from the prospect of better income, but also from the realisation from own experiences that work in the countryside is physically more challenging:

*"Herding and farming are both quite tough work."* (A4)

Thus, participants of a farmers' focus group stated that they *"do not want [their] children to become herders or farmers. (...) The children decide by themselves."* (L2)

While the above-stated narrative about young people wanting to leave for the city might be true in many cases and supported by data about migration (see Chapter 5.4.3), nonetheless, during a focus group discussion with youth in Munkhkhairkhan Soum, Khovd Aimag, all participants stated that they wanted to stay in the rural area:

*"We like the nature and the land. Life is good because we do not have any stress and no traffic jam."* (L10)

However, they further stated that prerequisites for this would include more employment opportunities, better infrastructure and an improvement of living standards and communication technologies (L10). A local geography teacher agreed that, if these things were provided, young people might even come back from urban to rural areas (A2). About the importance of physical infrastructure also see Annex 1.

Despite one interviewee attributing *herding* a high "social status" (G32), several interviewees prescribed it a meagre future in the study region, as e.g. the national programme leader of SDC predicts a *"much lower number of herders in ten years [as] youth doesn't overtake the herds [anymore]"* (I5). Meanwhile, the head of the Khovd Pasture User Group Federation agreed that *"very few young people want to continue herding"* (O3). Some attributed this to the lack of adaptive capacity and high vulnerability of herding to climate change (A4, O3), or high workloads (I5, L12). Among interviewed herder households themselves, almost none of the children wanted to continue herding (L3, L20, O4). Even the head of a local Pasture User Group stated:

*"We don't want our children to become herdsmen, we want them to fulfil their dreams." (O4)*

Meanwhile, interviewed adult herders stated that they themselves will continue herding (O1, L3, L22). However, one reported others quitting and moving to the capital *"because of social pressure (...) the friends say it is good in the city"* (O1). Thus, altogether, while some claimed that *"there is no one who still wants to be a herder. They all want to go to the city. None of the young people want to stay here"* (L12), others came to a more balanced conclusion and cited a *"backward trend"* (A9) with some young people rediscovering herding due to a lack of employment opportunities in the cities (G16, O21). While the Soum governor of Chandmani believes that *"Mongolia is an animal husbandry country, so, of course we will continue and livestock will stay the main income source for people"* (G16), the head of the Department of Biology at Khovd University concludes that *"in 50 years there will be herders, but the number [and] herd size will be smaller"* (A3).

The decrease of youth in herding implies that more young people are seeking employment in other sectors. Interviewees had varying opinions on whether horticultural production and associated activities offer attractive employment. Some stated that it was as hard or even harder work than herding and thus they (L30) or their children would not like to pursue it (L17). Others however reported about a growing interest in and demand for it (A1, A11, G24, G37, L26). Nonetheless, *"it almost never happens that herders stop and take up farming"* (G24), thus challenging the hypothesis that horticulture might present an alternative for herders. However, horticulture was seen as a sector for potential employment of the unemployed, artisanal miners, women, youth and old people (G24). Further, middle-aged to old people, and among them particularly women, were named as potential interested groups (A4, I3, L15, L25).

A perceived upside of horticultural production was that *"in farming one can influence the outcome (...) better than in herding – when one works hard then there is a better chance of getting a good result"*, while its seasonality was seen as a downside (L6).

As further discussed in Chapter 7, most interviewees active in the *tourism sector* were fairly new and thus did not know yet if they would recommend it to their children, while outsiders often did not have an idea about what employment in this sector looks like.

Meanwhile, the relevance of *mining* as an employment option, should not be underestimated, as interest among youth appears to be high (A2) and a large share of job seekers, especially youth, indeed find employment in this sector (G9).

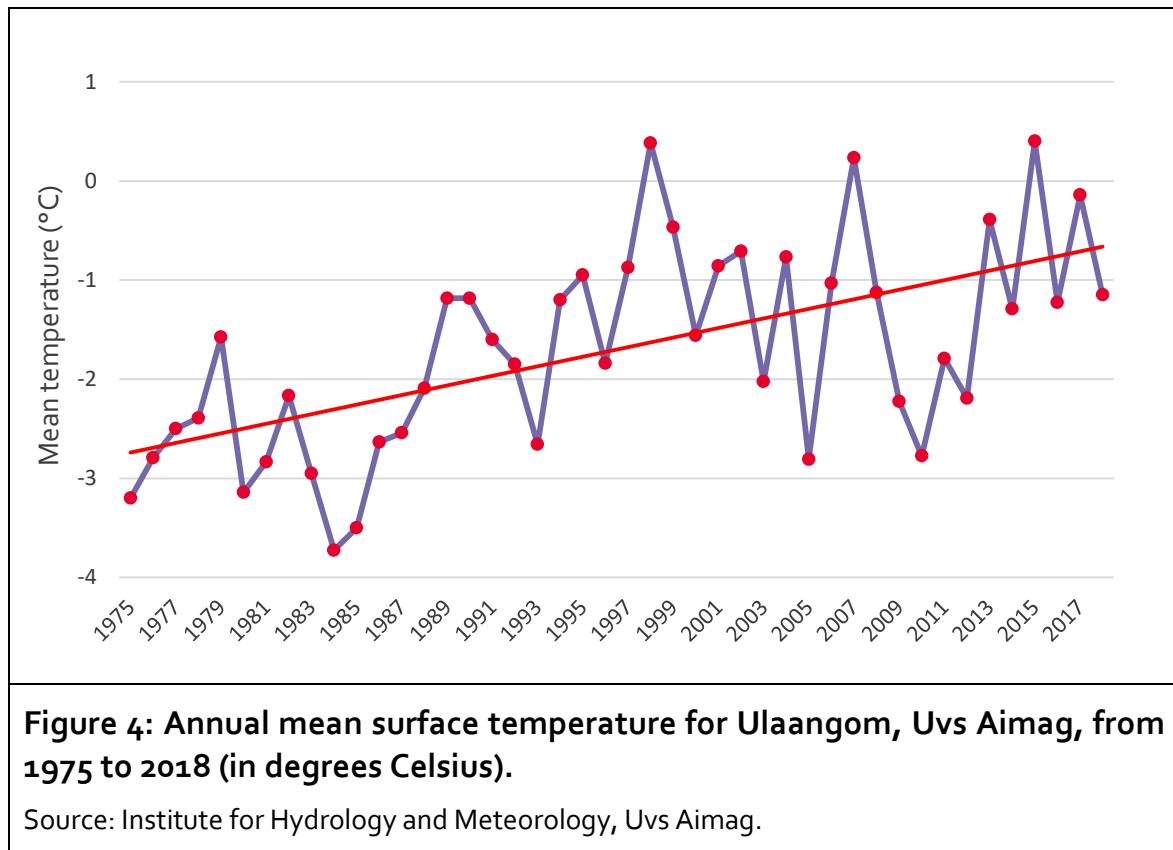
In Tarialan Soum, Uvs Aimag, there were reports about issues with more than 1000 “illegal” artisanal miners including severe environmental and health risks (G32). Lahiri-Dutt and Dondov (2017, 8) and local authorities (G31) agree that the decision to get involved in artisanal mining is in most cases rather *“need or poverty and not greed driven”* and thus a *“coping strategy to various structural and climatic changes in an economy which doesn’t offer a sufficient diversification of income opportunities”*. While there are reports about conflicts between miners and herders (G29, I2, I5) and generally miners being adversely affected by mining operations (Upton, 2012), (former) herders also engage in artisanal mining themselves, especially those with few or no remaining livestock (Lahiri-Dutt & Dondov, 2017). In this regard, local authorities hope that the horticulture sector might offer an alternative to mining (G24, G32). However, the concern was raised that *“people active in mining just follow the easy way and hope to make a lot of money in a short time, unlike when someone is engaged in crop production which is long and hard work”* (G31). Yet, *“stable jobs with a good salary may lead miners to give up mining”* (G32). In an interview with a miner supported by the government who is transitioning from artisanal mining to vegetable and sea buckthorn production as main income source, the hope was raised that horticultural production presents a viable income alternative, as the interviewee stated to be satisfied with his new income opportunity and that they could imagine convincing more miners to engage in this field in the future due to the worsening conditions for mining in the region. However, they also reported about various challenges including knowledge on production techniques, water and seeds supply, income in winter and many more that call for a strong governmental or donor support in the transitioning phase in order to give up mining entirely (L31).

## 5.3 Vulnerability context

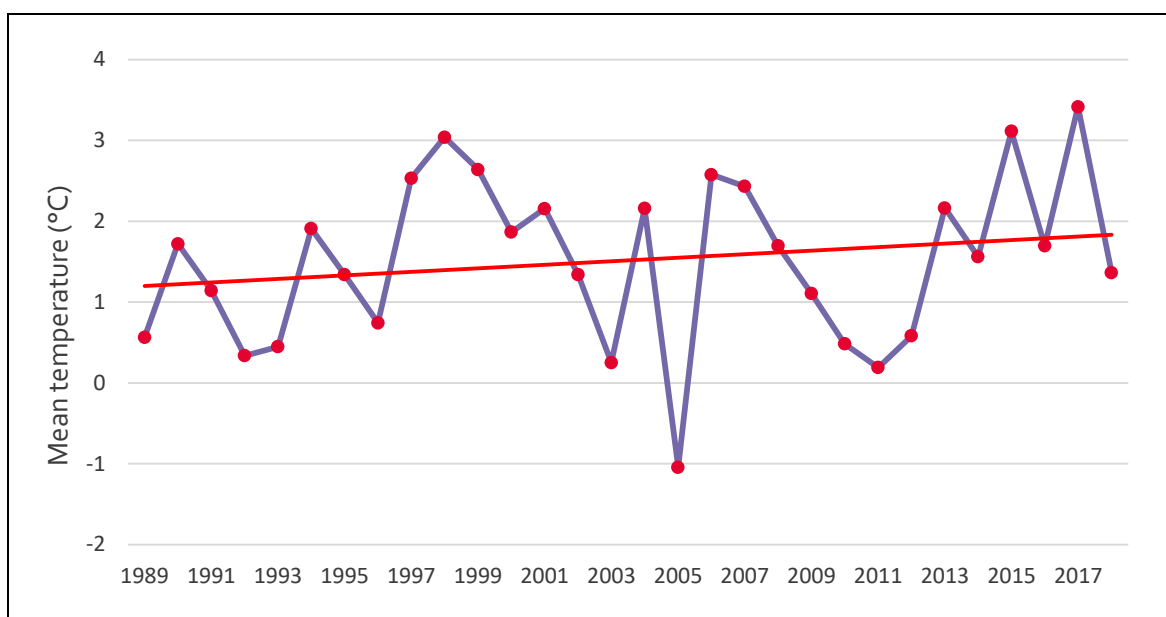
### 5.3.1 Climate change

Climate change is having an increasingly profound impact on the livelihoods of the local population in Khovd and Uvs Aimag. Both Aimags are categorised by the Ministry of Environment and Tourism (MoET) as two of the country’s most vulnerable Provinces under mid- and long-term climate change scenarios (MoET, 2018, 185). Local data from the Institute for Hydrology and Meteorology in Uvs Aimag paint a picture that is in line with the country’s overall drastic development (Figure 4). Technical staff from the Institute point out that, since 2013, glaciers in the Turgan mountain range are decreasing in thickness by 15-20 cm annually (A6). As

outlined in Chapter 5.1.5 and also described in Chapter 6.2.1, this leads to an increase of temporarily available surface water in the regional river systems, but will ultimately result in significant water shortages in the future, putting pressure on local agricultural systems (A6, A7, G2).



Khovd Aimag has seen similar temperature developments, as can be seen in Figure 5, albeit missing comparative data for the time period from 1975 to 1989. Like in Uvs Aimag, local observations in Khovd indicate that glaciers in the surrounding mountains are decreasing in size as a result of above average warming in the higher mountain altitudes of the Province, which is expected to have profound impacts on surface water availability in the future (A3, A4, G18).



**Figure 5: Annual mean surface temperature for Khovd, Khovd Aimag, from 1989 to 2018 (in degrees Celsius).**

Source: Institute for Hydrology and Meteorology, Khovd Aimag.

Experiences of climate change were widely reported in some interviews:

*"If the weather gets warm, it now gets too warm. If the weather gets cold, it now gets too cold. In other words, the weather is too extreme. This year, the Soum did not get any rain. But the snow is more, also in spring it was still snowing."* (L12)

There is growing awareness about severe changes in the local climate and its effects on vital ecosystems among local stakeholders, as can be seen by this statement made by a household located in Munkhkhairkhan Soum, Khovd Aimag. This awareness is amplified by statements describing the current situation in comparison to that several decades ago as being *"like night and day"* (O1) and *"dramatic changes"* (L7), concluding that:

*"It is really because of the climate change. Before there was a lake and the river was flowing from the lake, but now there is almost no water because of the climate change and the drought."* (L25)

From the statements made by rural households both in Khovd and Uvs Aimag, it is evident that profound environmental changes are recognised by the rural population in both Provinces. Additionally, a growing number of insects, including those previously not present in the region, are mentioned by some local farmers in both Aimags (L5, L21, L26). In connection with the gradual long-term change in the climate, specific observations are alluded by the local population and relevant



stakeholders when asked about the increasing impacts of climate change in association with extreme weather events.

Out of a total of 25 interviews in the two provinces, the following events are mentioned the most:

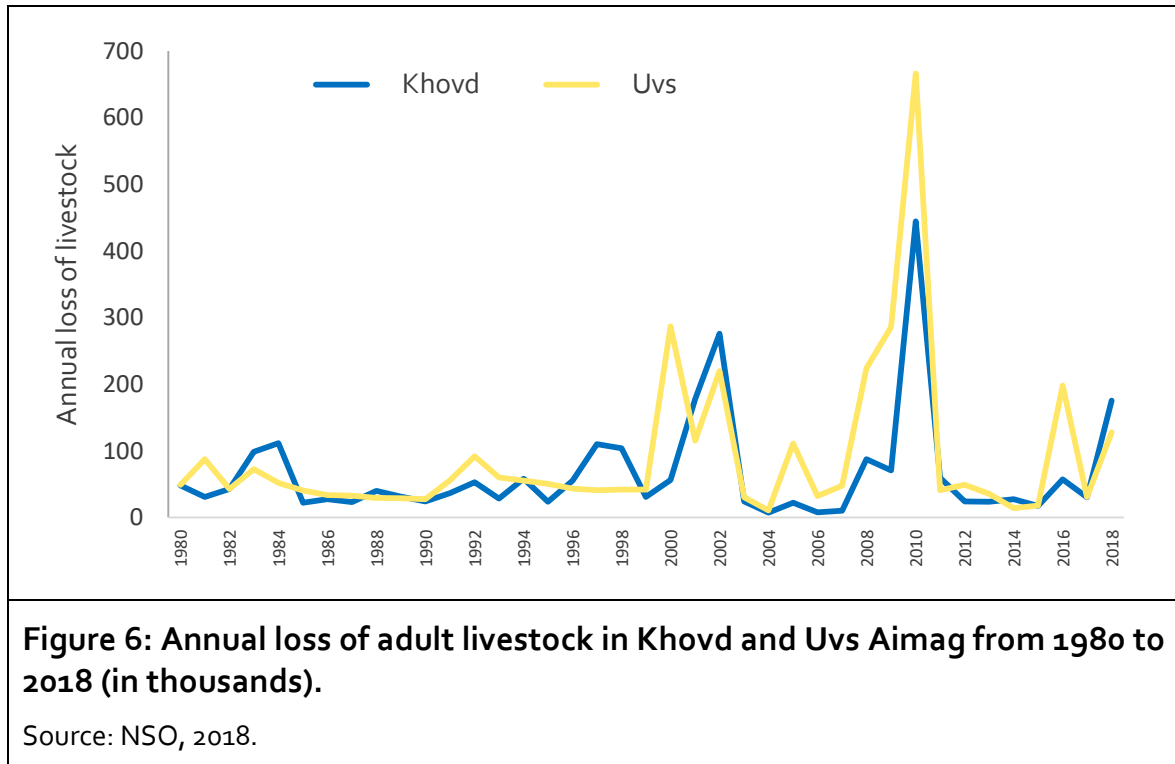
- Droughts and particularly dry/hot summers (A<sub>4</sub>, G<sub>16</sub>, G<sub>24</sub>, G<sub>25</sub>, G<sub>32</sub>, G<sub>37</sub>, L<sub>2</sub>, L<sub>3</sub>, L<sub>6</sub>, L<sub>12</sub>, L<sub>15</sub>, L<sub>16</sub>, L<sub>25</sub>, L<sub>33</sub>, O<sub>1</sub>);
- Decreasing availability of water/rainfall (G<sub>2</sub>, G<sub>15</sub>, G<sub>24</sub>, G<sub>25</sub>, G<sub>27</sub>, G<sub>32</sub>, L<sub>3</sub>, L<sub>5</sub>, L<sub>6</sub>, L<sub>16</sub>, L<sub>33</sub>, O<sub>1</sub>);
- Extreme cold during winters (A<sub>4</sub>, A<sub>6</sub>, G<sub>17</sub>, L<sub>2</sub>, L<sub>3</sub>, L<sub>12</sub>, L<sub>17</sub>, O<sub>1</sub>, O<sub>3</sub>);
- Severe rainfall and flooding (A<sub>4</sub>, A<sub>6</sub>, G<sub>18</sub>, L<sub>17</sub>, L<sub>25</sub>);
- Increased snowfall (A<sub>6</sub>, L<sub>7</sub>, L<sub>12</sub>, O<sub>1</sub>); and
- Storms (A<sub>6</sub>, L<sub>16</sub>, L<sub>5</sub>).

The observed frequency and intensity of extreme weather events, for example heavy rainfall leading to flooding and soil erosion, are of growing concern for local farmers, while ultimately also influencing the availability of sufficient pasture for livestock grazing (A<sub>4</sub>, A<sub>6</sub>, O<sub>1</sub>, L<sub>17</sub>, L<sub>25</sub>; Marin, 2010). As naturally occurring weather events are becoming more and more unpredictable in their scale and frequency, agricultural production systems in the two provinces are more often than not forced into a shock-like state, with the rural population having to resort to immediate coping strategies. The vulnerability to climate-induced shock events of rural livelihoods centred around agricultural systems must therefore be addressed separately.

### 5.3.2 Shock events

Disasters and extreme weather events that naturally occur on the Mongolian territory include droughts, forest and wildfires, snow and dust storms, floods, cold surges and *dzuds*. The economic damage caused by these events has increased more than tenfold in the early 21st century when compared to earlier decades (MoET, 2014, p.127). The frequency and severity of disasters is expected to further increase due to accelerating climate change, potentially constraining agricultural production, including mobile pastoralism (Batjargal & Enkhjargal, 2013; Fernández-Giménez, 2017; MoET, 2014, p.127). Droughts and *dzuds* are considered the most extreme due to their often dire impact on rural livelihoods. The 2009/2010 *dzud* alone took the lives of more than 10 million animals (22 % of the country's livestock population at the time; cf. Figure 6), endangering the livelihoods of over 200.000 rural herders (MoET, 2014, p.127). In 2010, rural poverty consequently

rose to 49 %, only to decline to 35 % in 2012 as a result of direct assistance. Compared to the 1960s, *dzuds* have tripled in their frequency in the past few decades (ADB, 2013, pp.8-9).



There are different types of *dzud*. Common to all of them is the impact they have on the lives of herded animals, as well as herders, either by posing a direct threat from snow storms and cold shocks (temperatures suddenly dropping to below -45 degrees Celsius), and by limiting the access to pasture either throughout the winter (due to heavy snowfall and frozen soils) and/or the availability of pasture in the following spring (amidst a lack or there being too much melt water that erodes the soil) (Hahn, 2017). Severe *dzuds* also negatively affect the reproductive potential of animals, thereby affecting pastoral households' economic well-being up to several years after the shock occurred (Lehmann-Uchner & Krähnert, 2018). Although *dzuds* are historically defining features of the Mongolian grassland ecosystem, usually taking place every ten years or so, these events can now happen every other year (Hahn, 2017) (see also Figure 6). Local observations by herding households attest to the severity of these developments.

Livestock mortality is strongly connected to extreme winter conditions, with extreme cold being the main driver of animal mortality especially in Western

Mongolia, as can also be confirmed by the experiences of multiple local herder households (Rao et al., 2015):

*"We are facing a dangerous climate change. Last year we had 10.000 yaks, 3.000 died in winter. They (herders) were depressed, disappointed and stressed. If they lose the cattle, they do not have any income."* (O1)

*"It has gotten very cold during the last years, especially last winter 2018/2019, 100 animals died, but also in the year before we had some animal loss. But we managed to deal with it on our own without any outside support, because we still have enough other cattle."* (L3)

*"Last winter was very severe. (...) Eight to nine families were affected. Only one family lost all animals, the other families lost some animals. 1000 animals in total, mostly sheep and goats, but also several cows, yaks, calves and one horse. (...) There are one to two families who quit herding. They do permanent jobs now and live in the Soum centre."* (G12)

Above statements illustrate the impact of severe winter conditions on rural households and how these events may drastically alter livelihood characteristics. Moving livestock in direct response to shock events has become a widely used coping strategy by herders (Murphy, 2018). Climate-induced shock events may hence lead to pasture degradation in some localities, both in the form of direct climatic influences (especially heat waves and prolonged droughts in summer) and as a result of temporal overgrazing due to *dzuds* and drought-related herd migration:

*"2013 to 2015 were quite harsh winters in some places, 2017 and 2018 were extremely harsh winters everywhere in Khovd. For example, in 2017 in Chandmani, 80 % of all herder households had to go to another Soum because of the harsh climatic conditions, leading to an 18-fold exceed of the carrying capacity."* (O3)

Some households go as far as to slaughter up to one-third of their livestock in advance of a looming *dzud* as they are unable to feed all their animals from the fodder previously amassed during the harvest season (A4, G17). Meat and wool are then sold on the market (G15). *Dzuds* are increasingly coupled with the occurrence of drought events (Sternberg, 2018). Since 2000, every year saw the unfolding of a drought event in Mongolia (MoET, 2014, p.130). This is again observed by local communities to endanger the sustainability of the herding economy: *"It is becoming harder and harder to be a herder in the countryside, due to the climate change and the dzuds and droughts, which are getting more frequent"* (L15). Droughts have prolonged effects on livestock, by prohibiting adequate plant

growth for harvesting fodder for the winter and not providing animals with sufficient fat reserves to live through winter and spring (Marin, 2010; Sternberg, 2018).

Shock-events left some herders to slide into precarious living conditions suddenly exposed to poverty, while others had to give up herding altogether. Pastoralists most at risk of these detrimental impacts are usually households with less than 200 heads of livestock, hence those already considered to live in economically poor conditions (G<sub>4</sub>). Once a herder has less than 100 animals, and is unable to restock, that household will ultimately have to give up herding as the provision of food and income does no longer cover the needs of the family (O<sub>3</sub>):

*"We used to have 100 animals in earlier years. But the livestock could not get any offspring since the last two years because of the severe winter. We do not have enough money to live and we cannot afford the clothes and food for our children."* (L<sub>12</sub>)

Once a small-holder household loses too many animals, their quality of life is significantly impaired (O<sub>4</sub>). In response, some households turn to income diversification, for example in the form of vegetable farming, in order to better deal with the repeated impacts of shock events on their herd size, while continuing herding their remaining livestock (L<sub>13</sub>). Other households receive support in switching from herding to farming as their main source of income or venture into other fields of employment (e.g. working part-time in construction or transport) (O<sub>3</sub>). Permanent migration of households to the Soum centres is also mentioned by former mobile pastoralists in Naranbulag Soum, Uvs Aimag, and Chandmani Soum, Khovd Aimag as an adaptation strategy (L<sub>19</sub>, L<sub>20</sub>).

Despite there being clear indications about the severity and projected long-term impacts of climate-induced shocks on the pastoral economy, some express their unfettered desire to go back to being a herder amidst prevailing hardship:

*"When we were herders, life was good and happy, now we lack everything and cannot even afford school utensils. I would like to be a herder again, I would just need some more cattle for this, even with climate change and overgrazing I think I could handle it and do it again."* (L<sub>20</sub>)

Flash floods resulting from intense and short-termed rainfall, thunderstorms, and hail, have increased two-fold in their frequency since 1990, becoming the most common natural hazards in Mongolia (ADB, 2013, pp.8-9; MoET, 2014, p.128). Their impact is felt by individual farmers in the study region, while also inflicting damage on general physical infrastructure, including buildings, power grids and irrigations systems (A<sub>4</sub>, A<sub>6</sub>, G<sub>10</sub>, L<sub>9</sub>). In response, the local government

in Naranbulag Soum, Uvs Aimag, is said to finance the construction of flood protections to lower the vulnerability of local producers (L25). Tourism infrastructure, such as *ger* installations and sanitary facilities, may also be also damaged or even fully destroyed by heavy storms and harsh winter conditions (O14, P6).

As outlined in Chapter 3.1, vulnerability of rural households to shock events or slow-onset climate change does not arise simply due to spatial or temporal specificities, but is embedded, that is increased, maintained or lowered, by the political, social and economic structures influencing their actions and experiences. The governance of risk exposure of both pastoralists and farmers in the study region lies predominantly in the hands of individual or collectively organised actors as explained by a crop and berry farmer from Tarialan Soum, Uvs Aimag:

*"There is great potential for enhanced cooperation due to the vulnerability that exists as a result of more natural hazards and this will ultimately lead people to come together on their own initiative."* (L21)

This stands in contrast to the country's socialist period, where the collective support system, which included fodder provisions in times of need, disaster management by transporting entire herds from more to less affected areas and direct relief in the form of cash transfers and in-kind contributions to herders severely hit by livestock loss, provided an effective way to tackle naturally occurring hazards and to ensure the long-term sustainability of the rural economy (Ahearn, 2019; Sneath, 2012; Janes and Chuluundorj, 2015). While large numbers of animals may have died during *dzuds*, the viability of mobile pastoralism and the well-being of herder households were ensured by the state. Today, herders are offered to buy into insurance schemes that provide pay-offs once a herd's mortality rate exceeds 6 % (Rao et al., 2015, p.11). Insurance schemes have shown to mitigate some of the economic losses experienced by herders. Yet, less wealthy herders are often unable to purchase insurance in the first place (Ahearn, 2019). Wealthier herders are unsurprisingly more likely to recover from shock events when compared to their financially less-endowed peers (Soma and Schlecht, 2018). As women often move to the Soum centres to provide access to education for their children, lesser-endowed herder households most in need of human labour face additional disadvantages during the disaster-prone winter season (Ahearn, 2018b).

### 5.3.3 Structural change

Some local stakeholders mention the benefits of the market economy, referring to increased income from their commercial activities and the fact that the previous generation had to work harder to improve their living standards (L29,

O21). Concerns, on the other hand, were voiced regarding the essential functioning of today's rural economy, including, but not limited to, the mismatch between people's education and work aspirations and the actual existing employment and income opportunities on the current labour market, particularly for youth (O21, G28, L30). Rural livelihoods based on crop production in Uvs Province used to benefit from the state's support for seed research and crop cultivation. Today, seed producers in Ulaangom, Uvs Aimag, complain about a lack of income from the sale of their products:

*"After the end of Socialism and in the beginning of the age of the market, the government policies on seed production disappeared, meaning they didn't support at all. When Seed Association was founded (...) prices were raised a little, but by far not enough, almost the same as many years ago while everything else became much more expensive" adding that "(...) in the age of the market profits from both crops and meat are not high enough for big investments."* (L33)

The disappearance of the state in supporting research in crop production is amplified by a local research institution. The Uvs Institute of Plant and Agricultural Sciences, for example, hosts seven staff members today compared to around 100 in 1990:

*"Until 1990, I would conclude, it was a successful time, we had more experts and government support. Since 1990, I would call it a time of failure for fruit and berry research, we have not had enough experts and government support."* (A7)

Privatisation of the crop production sector also impacted formerly-state owned Uvs Food, which was sold in 1998. Responsible for 50 % of the country's sea buckthorn production, due to low demand and competing products from abroad, the company runs well below its production capacity (200 tons of sea buckthorn are processed annually, compared to an existing processing capacity of 10 tons a day), while it had to let go 20 out of their former 100 employees in 2017 (P5). Uvs Food receives raw products from individual and organised farmers located in the Province, but is unable to pay, what is considered by their suppliers to be adequate prices, due to market competition from imported products (G2). It was also mentioned that, as a result of the current economic situation in the country, domestic consumers would not be able to pay higher prices for final products. When asked about the relationship with the government, it is said that private entities, like Uvs Food, are expected to work *"individually"* without government support (P5).

The economisation and financialisation of everyday life continues to persuade people to find ways of adapting to the challenges imposed by the market econo-

my (Ichinkhorloo, 2018; Plueckhahn & Bumochir, 2018). This is perhaps attributed to a resurgent interest of local actors in organising their economic activities collectively. While some previously existing food producing cooperatives were separated into smaller units under the auspices of international donors with the aim to achieve efficiency gains, which may have in fact lead to the later dissolution of those same cooperatives (O12). This is largely because cooperative structures compete with private sector actors to buy up raw materials. It is mentioned that private businesses sometimes lure small-scale producers into selling at disadvantageous prices (O15). One of the main differences between private companies and today's cooperatives, and simultaneously the motivation for small-scale producers to join cooperatively organised structures, is said to lie in the exclusionary pursuit of short-term profit (O12).

With respect to pastoralism, concerns raised by stakeholders point to the substantial impact the market economy has had on herders' livelihoods, ranging from statements such as *"before the age of the market life was better than because they (local people) were still herders, back then they would have gotten government support"* (L20), to *"traditional herding knowledge is not passed on to the next generation anymore"* (O3), to more drastic views, namely that *"pastoralist societies never managed to succeed in a market economy context anywhere in the world"* (P1). The government and donor community discourse on the compatibility between pastoralist livelihoods and the market economy in Mongolia is often guided by portraying herders as vulnerable to the market and unable to adjust to its core principles. Yet, pastoralists in Mongolia, as elsewhere in the world, can be considered to simply respond to the demands of the market as it unfolds, that is, to increase sales when prices are high and when enough money is to be made to cover their expenses (Marin, 2008). This, however, becomes an increasingly unstable strategy amidst the growing integration of the Mongolian pastoral economy in global financial markets (particularly its cashmere output), exposing it to sudden price fluctuations reaching down to the level of households (Ahearn, 2018c; Maekawa, 2013; Sneath, 2018).

Resentments are also voiced over growing inequalities: *"Under socialism everyone had equal opportunities and less fortunate families were taken care of. Today, there is a big difference between wealthy and poor people."* This statement by a widowed former herdsman and mother of five located in Buyant Soum, Khovd Aimag (L7), concerned not only the experiences of a small-scale herder. For the tourism sector inUvs Province it was stated by a local government expert that:

*"Only the hotel owners profit today. Very few benefits stay with the local people. (...) The head of the agencies should focus on how we make profit from tourism. It is not about developing tourism. The goal is on how people can benefit." (I10)*

Those without the necessary financial means to venture into new economic activities, particularly in rural areas, are left to resort to taking on individual loans, leading to growing amounts of household debt (Sneath, 2012). As pointed out in Chapter 5.1.3, indebtedness has become a common and wide-spread phenomenon.

The sudden transition to a market economy meant that severe impacts were felt on household and individual levels. Women in particular lost more jobs than men in the early years of transition (Skapa, 1995, p.90). Cuts in public spending have led to the underfunding of vital support systems, incl. the provision of adequate child care facilities in both Khovd and Uvs Province (G21, O8). In Uvs Province, existing capacities allow only for 68 % of all children to attend kindergarten with the local government financially unable to fill the void (O8). The burden of reproductive labour for some women and their total time spent on care and productive work consequently increased, particularly in the case of herder households (Cooper & Gelezhamtsin, 1994; Skapa, 1995; G21, L3).

In response to the economic hardship of transition, and reoccurring boom-and-bust cycles, alcohol abuse and increased violence against women have become persistent issues (Skapa, 1995, p.94; True, 2012; O8; O21; G21). This was a point particularly emphasised by the Mongolian Women Farmers Association:

*"After privatisation, many factories closed their doors and left many people unemployed. Private companies do not want women to go on maternity leave, they want people who work all the time and work extra hours, so they prefer men. When women are stressed, they tend to cry, men tend to drink. This created lots of violence on a domestic level." (O20)*

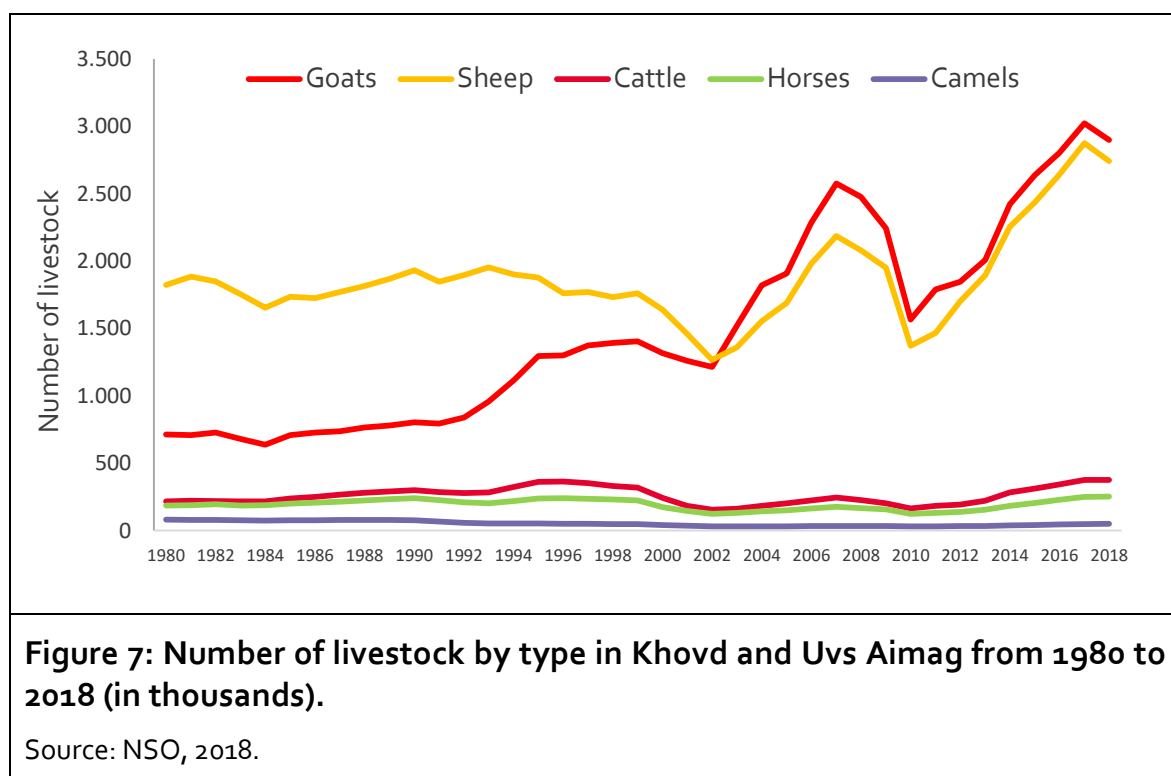
In a recent nation-wide survey, 30 % of all women stated that they experienced physical violence inflicted by their partner at least once in their lifetime (NSO and UNFPA, 2018, p.39). However, this is also considered to be the result of men's conventional concepts of household customs and tolerable behaviour.



## 5.4 Livelihood strategies

### 5.4.1 Change in livestock

From 1980 to 1990 the annual number of goats for both Khovd and Uvs Aimag ranged from 715.000 to 800.000. From 1990 to 2018, the number of goats rose from 800.000 to around three million (Figure 7). Similar developments took place on the national level, where the number of goats ranged from 4.6 million in 1980 to 5.1 million in 1990. Since 1990, the total number of goats in Mongolia grew from 5.1 million animals to more than 27 million, increasing by over 600 % in less than 30 years (NSO, 2018).



The direct correlation between the increase of goats (and sheep) and the advent of the market economy is explained by the fact that, de-facto overnight, herders went from being employees of the state with a fixed monthly salary to self-sustaining economic actors. As a logical response to the privatisation of the pastoral economy herders turned to the most profitable livestock product at hand – cashmere (Marin, 2008; Maekawa, 2013). With a direct income of breeding one goat 25 times that of breeding one sheep, and there being no need to slaughter goats in order to generate income, “it is clear that efforts to increase the proportion of goats originated from herders’ rational evaluations of their standing as

self-employed members of the capitalist economy” (Maekawa, 2013, p.239). Cashmere has been found to account for up to 70 % of all income from livestock husbandry of pastoralists located in the Altai region, as it is a desirable product particularly for remote herding communities, requiring no temperature control on the way to the market (Lkhagvadorj et al., 2013, p.86; Maekawa, 2013, p.236).

On the flipside, demand for cashmere is greatly influenced and determined by global financialised markets for luxury goods. Coupled with the impact of severe *dzuds* (goats are especially vulnerable to mortality during winter compared to other animals), which lead to repeated boom-and-bust cycles in animal population, abruptly changing market conditions are considered to exercise considerable pressure on herders’ income levels and well-being (Fernández-Giménez et al., 2017; Soma and Schlecht, 2018). Additionally, the increase in the herded goat population contributes to the contemporary degradation of grassland, as the rigorous grazing behaviour of goats, unlike other livestock, entails eating entire plants with roots and flowers as well as seeds, stifling plant growth across large swaths of grazed land (Hessl et al., 2015; Maekawa, 2013). This circumstance is exacerbated by the fact that income of herder households increases with the total number of animals (Lkhagvadorj et al., 2013). Hence, while pasture land remains a public domain, the privatisation of Mongolia’s pastoral economy may have had a significant role to play in causing overgrazing in the first place.

People are generally aware of the negative impact of herding too many goats, as expressed in the above statement by a pastoral user group in Khovd Aimag. Local government representatives from both Aimags explicitly mention their concerns over growing pasture pressure and the decreasing quality of animals (G4, G10, G16, G32). It can be derived from the following joint statement made by pastoral user groups in Buyant, Munkhhairhan, and Chandmani Soum, Khovd Aimag: *“We have lots of livestock and the pasture is too small for them. The animals have not enough nutrition, we should focus on the quality not on the quantity”* (O1).

Small-scale herders in rural areas are nevertheless forced to herd a relatively large number of goats as there is no substituting income that would cover their living expenses (Maekawa, 2013). Changes to the number and composition of livestock introduced by local pastoral users are indeed said to primarily result from having to cover financial expenses and improve their living conditions, including covering educational spending for children moving to urban centres (A3, G4, O3) (see also Chapter 5.1.3 on financial capital). This is said to lead to a vicious circle:

*"Herders want to increase their cattle because they want to get more income. If the number of animals increases, pasture plants decrease. If this happens, the production for livestock decreases. As such, the living standard also decreases." (A3)*

Local government representatives mention state programmes that seek to improve the quality of animals (G16), something also refers to as an intention of local herders (L13). NGOs, namely the World Wide Fund for Nature (WWF) and The Nature Conservancy (TNC), have reiterated the need to improve the profitability of existing pastoral production systems rather than increasing the amount of total livestock (I7, I6). Simultaneously, the government has put in place support programmes that promote the stocking with animals to reach an economically feasible herd size for small-scale herders or households without any livestock (G9, L11).

The dependency on cashmere as the main source of income and on increasing livestock numbers is indeed recognised by local officials in Tarialan Soum, Uvs Aimag, to not be sustainable in the long-term, leading them to contemplate about the creation of value addition in the form of meat processing factories on the local level, as amplified by the following statement:

*"With this manner of livestock keeping, herding will not work in the next 20 years. The same output should be achieved with less livestock. Prices for meat should go up so that herders may focus on quality instead of quantity. If there were a local meat processing factory, herders would be influenced to focus on high quality breeding. Currently there are two factories (one meat processing and one wool production) being planned and contracted with private sector companies. Land permits have been granted and some construction has already started." (G32)*

The average weight of livestock in Mongolia decreased substantially in recent decades as a result of growing environmental pressure. Between 1980 and 2000, the average weight of goats, sheep and cattle decreased by two, four and ten kilograms respectively. Weight reductions may be accelerated by advancing climate change, further lowering cashmere and wool yields and the income of herder households (ADB, 2014, p.2).

Forced to fend for themselves, mobile pastoralists have resorted to increasing their total livestock numbers and substantially increased the proportion of goats to generate income from the sale of cashmere in the market economy. This livelihood strategy, said to contribute to overgrazing of pasture land, comes under increasing pressure, as the combined effects of climate change, shock events and the market economy expose rural households to repeated boom-and-bust cycles. Amidst an absence of structural state support and a lack of income alternatives,

this strategy may trap households in a circle of reinforcing negative feedback loops.

#### 5.4.2 Translocality

Translocality describes the multiple and dynamic forms of mobility and connectedness of households and individuals across space and time (Greiner & Sakdapolrak, 2013; Sakdapolrak et al., 2016). It supports a more holistic understanding of the complex spatial interplay of networks, temporal movements of people, goods and ideas, and draws attention to the resulting transformation of the physical, political, economic, social and cultural dimensions of localities and their inhabiting livelihoods (Benz, 2014; Bromer, 2013). Translocality ultimately differs from migration in as much as it describes movements and connectedness spanning over shorter periods of time (I12). As Ahearn notes in her study of the gender aspects of social change within rural households in Mongolia: there exists “a striking multitude of locations in the organization of a household at any given time as people move between a variety of places to access services such as education, health care, financial resources, part-time work, and markets in urban and semi-urban areas while still maintaining rural livelihoods” (2018b, p.12).

As a result of the sudden breakdown in public investments in essential infrastructure, including in student dormitories and health care services, following the transition, the growing urban centralisation alongside the splitting of families throughout the year has become a common feature for rural households in both Aimags. To provide their children with education at the start of the school year in September, women typically move with their children from rural areas either to the Soum centres or Khovd and Ulaangom city where children attend primary, secondary or university education (L3, L6, O3, O8, G37, I12), while men continue pursuing the households’ main income generating activities (e.g. herding or farming) in their respective area of residence (Ahearn, 2018b; Fernández-Giménez et al., 2017; L31, O3). The splitting of households ultimately has had a profound impact on the gender dimensions of household activities. While some mentioned that “*Women in the city, while with their school children, pursue small jobs like handicraft selling or cleaning at some office*” (O3), others state that “*Women and children from herder households move to Soum centres during school time to take care of the children, but the women do not work. There are no job opportunities in the Soum centres*” (O8) and that “*Young women in Soum centre are often unemployed*” (I12). In the absence of public facilities, women have to care for their school-attending children which ultimately acts as a limiting factor for women to take on productive

activities, hence leaving them either unemployed or in part-time or low-paid labour arrangements (Ahearn, 2018b).

Translocal networks also act as support for income generation. While some production activities take care in one location, family networks are mentioned to provide access to markets and business operations at other locations throughout some parts of the year (L4, P7). Income generated in one location by some parts of the family may also act as financial capital for other household members, for example by providing income from temporary employment in Ulaanbaatar to cover education fees of younger siblings living in local Soums (L7). The findings suggest that translocality emerged as an important strategy for rural households to achieve improved livelihood outcomes, namely the provision of education for children and the generation of income. Given the distribution of responsibilities within the household with regards to productive and reproductive work, it can also be assumed that translocal livelihood patterns in Khovd and Uvs Aimag are strongly gender-oriented.

### 5.4.3 Migration

Migration in the two Western Aimags corresponds to trends observed at the national level. For local youth, the lack of employment opportunities (A2, A8, G21, G31, I12, L3, L7, L12, L20, L30, O1, O3) as well as the desire to pursue further education (A2, G16, G32, L8, L15, L30, O1) cited as the main reasons for wanting to migrate either from the rural Soums of Khovd and Uvs Aimag to the Provinces' capital cities (Khovd and Ulaangom) and/or eventually to the country's capital. One teacher in Khovd stated that out of her former 27 students only seven remained in the Aimag's centre, while all others moved to Ulaanbaatar to find employment (A2). Concerns about a lack of local employment and education opportunities are indeed issues debated among local youth during a workshop conducted in Ulaangom, Uvs Aimag:

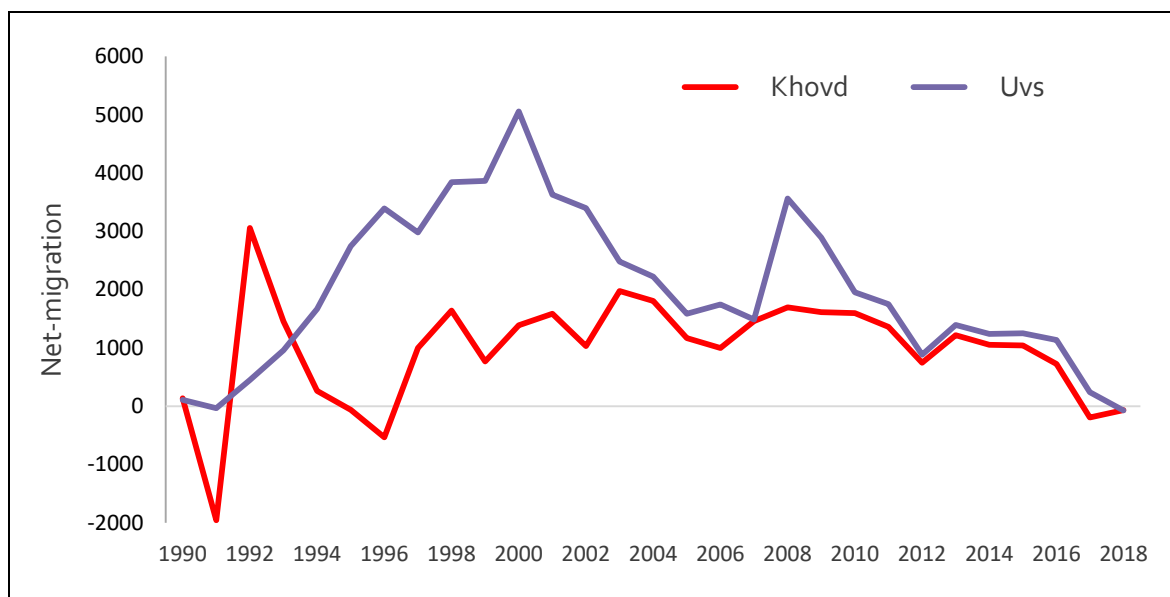
*"There should be a big factory to provide a lot of job opportunities. If there is a big factory, nobody would want to go to Ulaanbaatar to find a job. The most important thing are job opportunities (...). We only have a labour university and we need many universities with more diversified professions."* (L30)

While the overall population in both Aimags gradually increased over recent years, out-migration has become a persistent phenomenon, with most migrants being of young working-age and having higher levels of education on average (IOM, 2018a) (Figure 8). Internal migration also takes place in the form of people migrating within or across different Aimags (IOM, 2018a). For entire households,

this is considered to be primarily the case when children reach school age and families decide to permanently move to provide access to schools that are located in the Provinces' centres (A2). The same may also apply when moving to the country's capital, however (A5).

A recent survey by the International Organization for Migration (IOM) (2018a, pp.25, 29) found that for internal migration in Mongolia, including in Uvs Aimag: "economic considerations, moving for family welfare and the desire for improved living conditions are the primary motivating factors for migrant households to move from their communities of origin." And that "only 4 % of the sample mentioned moving because of a specific occurrence, such as an environmental disaster." This implies *dzuds* or severe winters causing significant loss in livestock may also drive short- and long-term migration. Recent findings on the long-term impact of a one-time *dzud* event (2009-2010) on pastoral households' asset growth in the form of livestock, again covering Uvs Aimag, found that "the extreme weather event had a significant, large, and negative effect on growth rates in herd size even several years after the shock occurred. In addition, the severity of the extreme event is a strong predictor for dropping out of the herding economy" (Lehmann-Uchner & Krähnert, 2018, p.43). Taking both findings into consideration, many herder households mention economic hardship as one of the main reasons for migrating, as compared to the minor direct influence of a one-time shock event. Thus the impacts of climate change and extreme weather events may play a more important role than previously assumed in the decision to migrate and have longer-term impacts on herders' economic welfare.

Temporary spikes in the number of people migrating during the two most severe recent *dzud* events (1999-2000 and 2009-2010), as can be seen in Figure 8, on the other hand, serve as an indication of the more immediate adaptation of some parts of the herding population. This response also manifests itself in intra-Aimag movements, where some households, both in Khovd and Uvs Aimag, moved from rural Soums to the Aimag's urban centre in direct response to the events, only to return to their Soums of origin shortly after (IOM, 2018b; NSO, 2018).



**Figure 8: Annual net-migration for Khovd and Uvs Aimag from 1990 to 2018.**

Source: NSO, 2018. Note: Nation-wide migration data as of January 2017 is not representative due to the official migration ban for the capital city, leading people who migrate to Ulaanbaatar to not register at their new place of residence thus remaining registered in their places of origin (I12).

Migration as a livelihood strategy of mobile herders must be understood as a non-linear process with multiple pathways. Its complexity is further highlighted by the two following opposing statements made by a widowed mother based in Munkhkhairkhan Soum, Khovd Aimag (whose household recently lost more than half of their livestock (110 out of 200) in a severe snowstorm), on the one hand, and a board member of the local branch of the Mongolian Youth Federation in Uvs Aimag, on the other hand:

*"There is not anyone that wants to be a herder. They all want to go to the centres, either Khovd or Ulaanbaatar, no countryside. None of the young people want to stay in Munkhkhairkhan."* (L12)

*"Migration is a big issue; a lot of young people migrate to Ulaanbaatar. (...) As part of my job I talked to 100 young people in nearly all Soums of this Aimag. Most of the young herders do not want to move to the Aimag or Soum centre. Things changed for them. Now they have solar panels, TV with a lot of channels, a fridge, a smartphone... anything you also have in the Soum centre. (...) In general, the young herders are very happy with their living situation. (...) Also, herders do not want to be unemployed, this is why they stay in the countryside."* (O21)

People have indeed differing opinions about migration as a suitable livelihood strategy, especially for youth. When people were asked about the prospects of

youth and the future of herding, some statements refer to a future outside of herding: *"I don't have any children who want to be herders in the future. The children want to be educated and then they want to get a job"* (O1), with one statement even going as far as to say that *"very few young people want to continue herding as a herder's life is quite tough and herders cannot adapt to the climatic changes"* (O3). Other statements indicate that there is indeed a future for herding and that young people who initially migrated decide later on to engage in herding after all: *"Some children of herder families always realise that herding is a good income source"* (G16), which is further supported by the awareness about the difficulties of young people in finding employment opportunities in urban areas that match their formal education and the resulting return to the rural herding economy (A9).

The relevance of migration as a livelihood strategy can thus not be generalised and is context-specific. Although some young people may migrate in search of better employment opportunities, destination locations, be it the Aimag centres or the capital city, the destinations might in fact lack those opportunities, especially for those with higher education, forcing people into unsecure, low-paid working conditions or eventually to return to their places of origin (IOM, 2018a; G10, G21, O21; Myadar, 2006). What can be said, in conclusion, however, is that internal rural-urban as well as international migration will likely continue to be considered by many as valid options amidst growing environmental pressure and the current shortcomings in decent job opportunities and essential public services on provincial levels.

#### 5.4.4 Mobility

According to the International Fund for Agricultural Development (IFAD), "mobile livestock-rearing lies at the heart of the pastoralist logic of interfacing variability in the environment with variability in the production system" – mobility thus presents an adaptive specialisation and is essential for sustainable food production and coping with climate variability. "Constraints to mobility therefore represent direct threats not only to pastoralists' livelihoods but also to ecosystem health" (Butt, 2016; IFAD, 2018, p.2). The Mongolian context is no exception where, "a high herd mobility (...) promotes well-nourished animals and prevents overgrazing" (Soma and Schlecht, 2018, p.12) as herders track the best pasture for maximising animal nutrition in customary seasonal movement patterns (Murphey, 2018). 90 % of herders in and around the study region move regularly at least twice a year and 46 % up to four times a year (SDC, 2017). Moreover, more disruptive (often longer distance) movements for the Autumn fattening of livestock or



to escape drought or *dzud* conditions – referred to as *otor* – are done by 60 % of herders at least once and 30 % at least twice a year (SDC, 2017). The importance of mobility as a coping strategy in the study area was highlighted by the head of the Khovd Pasture User Group Federation who stated that “e.g. in 2017 in Chandmani, 80 % of all herder households had to go to another Soum because of the harsh climatic conditions” (O3) while an IOM specialist explained that “especially in regions with drought, people in rural areas move longer distances” (I12).

Thus, donor projects should avoid “limiting mobility, and promoting sedentarisation, e.g. by trying to transform pastoralists into farmers”, as this had often “failed” in the past. Examples include former GIZ projects in Africa (IFAD, 2018, p.9) and a case from Inner Mongolia where the subsidisation of stall-fed, sedentary pastoralism “has increased livelihood vulnerability of herders to climate variability and change” (Wang et al., 2013, p.1673). Moreover, the growth of national parks can be problematic, as a park ranger in Chandmani reported that herders who were “told to move out” from their original domicile due to the establishment of a strictly protected area (PA). This led to herders “in practice [having] nowhere else to go” since other areas “may not provide essential resources, such as water”, leading to them (illegally) returning (G17). While the issue of PA management will be further elaborated in Chapter 7.5.1, it shall be remarked here that this is not the only case in Mongolia, as Ulambayar and Fernández-Giménez (2019, p.100) find that setting up “exclusive access rights to resources with clear boundaries” may lead to “negative impacts (...) because they may alter essential pastoral strategies of mobility and flexibility”. This is confirmed by Bedunah and Schmidt (2004, p.167) who find that “the national goal of protecting 30 % of the country, doubling the area of Mongolia currently under protected area status, could have negative effects on pastoral livelihoods”, e.g. through limited amount of *otor* reserves. Thus, Beduhna and Schmidt (2004, p.188) further argue, the “control of pasture areas will [rather] need to occur through mechanisms and approaches of consensus and collaboration – calling for a participatory, collaborative resource management approach including ministry officials, protected area administrators and pastoralists”, with various literature agreeing that a “holistic approach” is needed (Fernández-Giménez & Le Febre, 2006; Janzen and Bazargur, 2003).

Meanwhile, mobility recently underlies further significant changes (Butt, 2016; Chen et al., 2018) due to several impacts from “a changing economy and a warming climate” (Lkhagvadorj et al., 2012, p.82). While more wealthy herders seem to adapt to “climatic changes, increased competition and overgrazing” with “an increased mobility” (larger distances), “poorer herders with fewer animals or a lack of labour power and health issues were linked to decreased movements” (Upton,

2013, p.50). Moreover, increased transportation costs (Beduhna and Schmidt, 2004; Chapter 5.1.4; Lkhagvadorj et al., 2012) and “increased scarcity of resources” (Upton, 2013, p.56) present key determinants of herders’ movement (Beduhna & Schmidt, 2004; Janzen & Bazargur, 2003; SDC, 2017) which can in turn create new issues, as e.g. *“livestock moves closer to the Soum centre in search for water – which causes conflicts with farmers”* (L6). Losing one’s livestock in a shock event was also reported as a reason to move closer to or into the Soum centre, giving up mobile pastoralism and becoming sedentary (L7, L18, L19, L20, L21). Meanwhile herders who had sufficient livestock and did not struggle reported no change in mobility patterns but a continuation of old habits (L2, L3, L34, L35).

Alongside ecology-induced, “policy-driven changes” could cause alteration – often a decrease – in mobility (Ulambayar & Fernández-Giménez, 2019, p.94). For example, “the post-socialist breakdown in government support to maintain the physical infrastructure and staff in rural dormitories, along with a lower [school] enrolment age, has necessitated a change in pastoral families’ patterns of mobility” (Ahearn, 2018b, p.4). Indeed, several interviewees reported a limited mobility or even sedentism due to education (G4, G21, G33, L6).

Decreased (or in a broader sense “altered”) mobility – either due to ecological or structural changes – might be a key contributing factor to unsustainable use of grasslands like overgrazing (Lkhagvadorj et al., 2012), as Mearns (2004, p.26) concludes:

*“Overgrazing is not just a consequence of larger livestock holdings, and the increased number of households herding livestock. It is (...) directly related to the breakdown in livestock infrastructure (e.g. wells, shelters) and higher transportation costs precluding people from moving further in search of pasture. The concentration of herding families around marketing outlets, health and education services, infrastructure and water sources, all of which have been declining in spatial coverage, exacerbates overgrazing which in turn results in conflict over pasture.”*

Lastly, it should be noted that mobile herding might not be compatible with sedentary forms of income generation, as a Mongolian University of Life Science (MULS) professor stated that *“experience with herders on farming does exist, however it is difficult due to mobility. Mobile herders have difficulties dealing with farming”* (A11), and several mobile herders – who possessed “sufficient” livestock (<~200) for sustaining their livelihoods through animal husbandry stated that they were not interested, saw no need and did not have the time or labour power to engage in complementary horticultural production (L3, L34, L22). The head of the Pasture User Group Federation in Khovd confirmed and summarised: *“Herders*

*who have enough animals don't need additional income and are not interested in it. They also don't have the time for it" (O3).*

#### 5.4.5 Income diversification

The diversification of income opportunities in the rural Mongolian economy, including the promotion of horticultural production and tourism activities, is considered to support the resilience of households and their adaptation to climate crisis and economic uncertainties (Batjargal & Enkhjargal, 2013). Providing complementary sources of income is also thought to support efforts to reduce the number of livestock and associated pressure on grazing land (Maekawa, 2013; Undargaa, 2016). This assumption is held in particular by the MoET and GIZ as well as other donors (G3, I1, I4, I6). The findings from this study, however, indicate that the generalised assumption that income generated from sources other than livestock leads to a reduction in the number of animals does not hold (see also Undargaa, 2016, p.175). In fact, the opposite might often be the case. When asked about the relationship between income from complementary activities and livestock keeping, all except from one interviewee – a *ger* camp manager who participated in awareness raising on the issue of overgrazing in his previous work for WWF – stated that livestock numbers are either kept at a stable level over time or that additional income is used to increase the number of animals (L17, L20, O11, O14, P3). Textbox 1 illustrates the latter.

#### **Textbox 1: Multiple income-generating activities of rural households in Khovd Aimag.**

Statements made by various actors on the local level indicate that rural households typically employ multiple income generating activities at the same time.

- Largest farmer in Chandmani Soum: *"Yes, I also have 300 animals. I use them for my needs and sell them occasionally when money is short. The additional income from sales in farming is invested in new animals."* (L17)
- Ger camp owner in Khovd: *"I started cow farming in 2016 not because I did not earn enough money with tourism but because I wanted to invest money from tourism in something promising for the future. I am content with my income. I want to continue both herding and tourism."* (P3)
- Former herder, now small-scale farmer in Chandmani Soum: *"(...) I have invested money from working in crop production in livestock [again]."* (L20)

As indicated by local government representatives in Tarialan Soum, Uvs Aimag, keeping the number of animals at a stable level is the result of clear economic incentives (see also Chapter 5.1.3 on financial capital and 5.4.1 on changes in livestock). It is also strongly connected to the social status associated with keeping a certain number of animals and the deep and long-standing cultural embeddedness of traditional livestock keeping:

*"Herders neither switch (to other income activities) nor do they sell their livestock. Somehow they do not care about it (overgrazing). They think that the prices for selling livestock are not good enough to sell so they rather keep the livestock. They only sell when the money is really needed, for example for paying the tuition fees for their children's education. The number of livestock is also high because of the associated social status."* (G32)

Additionally, as stated by the Head of the Pasture User Groups (PUG) in Khovd, Khovd Aimag, pastoral households with a sufficient number of animals may not be able to take on additional activities in the first place due to time constraints resulting from their herding activities. There was found to be no immediate financial incentive, at least for better-off households to engage in such additional activities: *"Herders who have enough animals do not need additional income and are not interested in it as they also do not have the time for it, meanwhile herders who are struggling because they have very few livestock do have time and are interested."* (O3). Mobile pastoralists are often found to be the only sub-group of the rural population to have almost exclusively one source of income. It must be noted, however, that there are diverse income sources within livestock keeping, i.e. the production and sale of products from meat, skin and dairy. Importantly, households exclusively occupied with livestock keeping were observed to usually keep a minimum of 250 animals. This aligns with other findings stating that, in order to successfully pursue livestock keeping as the only source of income, a number of at least 150-250 animals are needed (SDC, 2017; Lehmann-USchner and Krähnert, 2018).

While most of the interviewed mobile herders mentioned that they were not interested or would lack time and/or labour power to engage in complementary income activities, households with fewer livestock, on the other hand, were indeed observed to generate income from more than one source. This included the farming and sale of crops, fruits and berries (G6, L3), providing animal products to tourist facilities (G36) and other commercial activities (G31). When asked about the potential of combining herding with other income sources (e.g. farming or tourism), respondents stated the necessity of organising herder households into

groups in order to make efficient use of available resources (O1, O9, O11, O12, O14). In other cases, herders expressed their interest to become active in other economic sectors pointed to a lack of knowledge on how to do so, indicating that there is an asymmetry of knowledge between respondents (L3).

Another important aspect is the prevalence of absentee herding, i.e. the often part-time occupation of herding another's livestock. Absentee herding as an additional source of income is practiced especially by herder households which lost a portion of their own livestock (G12) and households active in small-scale farming or other activities (L5, G31). Absentee-owners can be households active in farming (O1) or tourism (P3, O6) that also consider livestock keeping as one of their livelihood pillars. There is no clear data about the number of absentee owners, herders or absentee-owned livestock, making it difficult to assess to which extent this phenomenon may influence pasture use and pastoral livelihoods (Fernández-Giménez et al., 2017). Local observations imply the existence of a complex relationship between traditional livestock keeping and other sources of income on the level of households.

When clustering a small number of households polled about their income composition by their main occupation, a diverse composition of income sources was observed on the local level. The resulting overview provided in Table 3 must be understood as to illustrate only a limited indication with no claim for generalisation about overall households' income composition.

**Table 3: Sources and share of income of the rural population by main occupation (income diversification sample).**

Main occupation	Sources and share of income			
	Number of live-stock	Livestock	Farming	Others
Mobile pastoralists (L3, L15, L34, L22)	250 – 700	95 – 100 %	0 – 5 %	0 %
Farmers (L2, L5, L9, L17, L21, L26)	60 – 300	25 – 60 %	40 – 70 %	0 – 30 %
Farmers with a greenhouse (O16, L23)	Few	0 – 10 %	90 – 100 %	0 %
Soum dwellers (L6, L7, L12, L18, L19, L20, G17)	Few – none	0 – 25 %	0 – 50 %	50 – 100 %
<i>Ger</i> camp managers/owners (O5, O6, P3, P4)	70 – 400	0 – 50 %	0 %	0 – 50 %
Source: Own data.				

For households categorised as farmers, income may be derived from multiple sources such as livestock keeping or construction work. This may even be the case for those with the most land and income generated from farming. Farming only generates up to 70 % of income among households not possessing a greenhouse. Hence the denomination as farmers might be misleading, as people under this category often consider themselves as both farmers and herders (in some cases farming and (absentee-owned) livestock are mentioned to each generate 50 % of the total income). Farmers in possession of greenhouses, on the other hand, generate a far larger share of their income from farming and up to 10 % of their income is reliant on other activities.

Taking into consideration the observations among the five different groups, households cannot be categorically classified as belonging exclusively to either one or the other group. Evidence points to the existence of a fuzzy continuum, again amplifying the strong entanglement of different income sources, especially of livestock keeping with other activities. The distinct feature of farmers, Soum dwellers and *ger* camp managers/owners, as opposed to mobile pastoralists, is

their sedentariness and the fact that these groups tend to engage with livestock keeping either only part-time or through absentee herding. Furthermore, household income from multiple sources is often generated during different times of the year, namely farming and tourism in summer and livestock and other activities during winter (G31, L1, L31, O11, P6) (see also chapter on seasonality).

At informal mining sites in Tarialan Soum, Uvs Aimag, up to 1.000 individuals from different Aimags and Soums were found by the local government to engage in surface and underground gold mining (G32). The statement of one household with a 15 year-long history in surface gold mining in Ulaangom, Uvs Aimag, illustrate the dynamics of mining when combined with farming:

*"Mining and crop production are very different. With mining you will get lots of money quickly, for crop production one has to invest in the beginning, and be patient – you have to be prepared for that – but then you can have income for a long time. (...) We really want to continue to have both [mining and crop production] as crop production is such a seasonal occupation."* (L31)

The household in question was observed to generate income from both mining and crop production, having gradually moved towards farming. The respondent indicated this was atypical of most households. Income generated from mining is often used to invest in farming resources. This signifies a growing awareness about the longer-term limitations of mining as a stable income source alongside efforts by the local government to crack down on informal mining activities. Despite this, farming activities are said to only take place during the months from June to September. During the winter season the expressed intent of the questioned household is to continue to generate income from mining. While farming is considered as a more stable and secure source of income in the long-term, the continuation of mining can be explained due to its higher profitability in the short-term.

Female members of households are said to be in a better position than their male counterparts to evaluate whether a household is able to pursue additional income activities (I2, I3). Female members of households currently pursuing only one income strategy expressed their interest in generating additional income. Factors limiting the uptake of additional activities by women are said to be time and labour constraints, as well as a lack of knowledge on how to pursue such activities, e.g. in tourism (L3, L24):

*"There are differences in business opportunities among men and women. Usually, men start businesses. The reason for this is that men are more suitable to sell products because they can go somewhere to sell. Women cannot leave, because of the*

*housework. What needs to change so women can be involved in business? More information and better networks are needed.” (L24)*

Other women were found to pursue a range of economic activities additional to the household’s main occupation (i.e. farming or herding). These included the production and sale of traditional clothing (L12, L24) fruits and berries (L12), the group-based production of processed vegetables and handicraft products (O8, O11), catering for tourists (O11) and other activities such as selling at local markets or cleaning (L6). Access to relevant markets is limited and the sale of products and goods thus tied to customers and locations to where the women resided (L12).

The gendered distribution of household tasks and livelihood activities of much of the rural population indicates that additional sources of income are potentially assigned to men and women based on traditional norms and differences in their seasonal, temporal and spatial availability, leading to a tendency to either exempt women from certain income opportunities or to create additional work load (see also Ahearn, 2018b; Baast and van de Fliert, 2014): *“The husband is responsible for park ranging, while the wife feels culturally responsible to do the rest of the work”* (O11).

For youth, the desire to pursue new activities is connected with the availability of knowledge on relevant practices (e.g. in tourism) and the level of income to be generated from such activities (A8, G28, L26, L30, P4).

## 5.5 Livelihood outcomes

Based on the local population’s capital asset endowments and their actions taken with regards to mobility, change in livestock, translocality, migration, mobility and income diversification in response to the pertaining vulnerabilities, structures and processes, the authors have identified three key livelihood outcomes. As implied by local stakeholders, including the different groups of the rural population, the desired achievements of pursued livelihood strategies pursued constitute increased levels of income, improved overall well-being and the strengthened resilience of livelihoods (see also DFID, 2001). Neither of these outcomes should be considered independently, as the three outcomes and their achievement are strongly interconnected. The following chapter provides a summary of the observed outcomes as outlined in the preceding chapters of the livelihoods description.



### 5.5.1 Income

As explained in the preceding chapters, the drivers of increasing household income are manifold, ranging from having to cover educational spending for children and loan payments, or simply catering for daily needs in cases where salaries or other sources of income may not be sufficient (incl. pensions or social welfare provisions) (G17, L2, L7, O5, O11). The drive to generate income from non-traditional or new activities, e.g. farming or tourism, may also stem from the need to compensate for slow-onset and sudden losses as a result of climate change and shock events. This was often reported to be the case for small-scale pastoral and farming households (O5). Increased efforts to improve income levels, while applying to most parts of the local population, are undertaken most prevalently by less-wealthy households more susceptible to the impacts of extreme weather events or market shocks. Female-headed households are said to be particularly in need of income generation (L6). Differences were also identified within and across households where activities intended to generate additional income were transferred into the hands of female household members (O11). As outlined in the previous chapter, efforts by the rural population to improve their financial situation by diversifying income sources do not necessarily correspond to simultaneous efforts to decrease the amount of livestock. Income generation, under the pertaining conditions, in particular the vulnerability of much of the rural population to the accelerating environmental change associated with the climate crisis and external market shocks, may therefore create negative trade-offs with the sustainable use of natural resources.

### 5.5.2 Well-being

Well-being was found to play a key role in young people's non-material aspirations for a good life. While concerns were expressed about the perceived "*laziness*" of the younger generation ("*young people just want to get to the top without working for it*") and their unwillingness to commit to physical work ("*they only want to work in offices, not under the hot sun doing hard work*"), for example, by a board member of the youth federation in Uvs Aimag, youth themselves express their desire for an improved physical environment at their resident location, which includes a healthy environment, sanitary infrastructure and the provision of leisure activities (L30, O21). Comparisons are often made by youth between the amenities and perceived possibilities that exist in Soum centres and those in the Aimag centre, or between the Aimag centres and the capital Ulaanbaatar. Rural-urban migration by youth may thus be considered to act as a prevalent strategy to achieve this outcome (I12) (see also Chapter 5.4.3 on migration). Seasonal migra-

tion of women and children of rural households during parts of the year, on the other hand, points to the importance of translocality as a strategy to provide for education, which may be summarised under aspirations for improving the overall quality of life in the long-term (O8). Notably, it is stated that by engaging in income activities, women also achieve non-monetary outcomes, namely improved social networking (I6); something which is also observed by some on the entire household level when engaging in tourism activities (O11). In connection with taking up farming activities, some respondents mentioned increased food security and health benefits attributed to the household consumption of vegetables, fruits and berries. This highlights another possible dimension of the interconnection between income generation and improved well-being (L21, O12).

### 5.5.3 Resilience

Considering resilience as the capacity of livelihood systems to resist, recover and transform, as outlined in Chapter 3.1, rural households are indeed observed to apply a range of activities in order to increase their resilience. This includes farmers fostering resilience by selecting crops that have proven robust in dealing with extreme weather (i.e. sea buckthorn) (L5), but also undergoing deeper transformation by diversifying sources of income (e.g. tourism or farming) in response to experienced hardships in herding livestock as a result of climate change and shock events (L15, O5), or amidst growing insecurity due to the gradual phase-out of artisanal mining (L31). Pertaining to the SLA framework, livelihoods have herein been described with particular attention to their vulnerability context. This consists of the multiple dimensions under (and degrees to) which households in Western Mongolia are exposed to risks. Vulnerability and resilience, however, should not be used antonymous but rather as separate interrelated concepts. Communities and households (e.g. mobile pastoralists) may indeed be (and in the case of Mongolia have been for millennia) highly resilient, while at the same time coming under increasing pressure leading to their increased vulnerability (Fernández-Giménez et. al, 2017). Shifting the entire focus on resilience would undermine efforts to effectively address the underlying causes of vulnerability rooted in social, political, economic and environmental systems (Joakim et al., 2015).

It is within these constraints and contexts that any development interventions must be considered. The following two chapters look into the target sectors in greater detail and situate them in the theoretical framework already outlined.



## 6 Analysis of the horticultural sector

### 6.1 Sector overview

The following chapter provides an overview of the production and demand for fruits, berries and vegetables in both Khovd as well as Uvs Aimag. Furthermore, the current state of employment opportunities is discussed.

#### 6.1.1 Production

Throughout Khovd Aimag, 920 hectares are currently used for vegetable production representing 10.4 % of the total area used for growing vegetables in Mongolia. In 2018, the Aimag's total vegetable production was 11.480 tons. This makes Khovd by far the largest producer in the Western region and fourth largest nationally (NSO, 2018). The Aimag's main vegetable products are watermelons which are well known and consumed across Mongolia. With an annual production of 5.064 tons, watermelons represent the biggest share of the Aimag's vegetable production<sup>3</sup> (see Annex 4). In Uvs Aimag, vegetable cultivation only plays a minor role in its overall agricultural production: 275 ha are used for vegetable production and the annual yield in 2018 was 2.907 tons. However, Uvs Aimag is the largest producer of berries nationally. With a cultivation area of 653 ha, the Aimag produces 932 tons of sea buckthorn and cowberry, which constitutes more than half of the total national production. In Khovd Aimag, berries are only cultivated on 63 ha with an annual production of 53 tons (NSO, 2018).

To fully understand the current development of horticultural production, it is important to consider the impacts of structural changes during the transition period which almost caused a collapse of the entire sector (FAO, 2017b). Between 1959 and 1976, policies and development campaigns by the Mongolian government under the Soviet Union were designed to explicitly strengthen crop production. As a result, the country's total production area and degree of self-sufficiency for cereals, potatoes as well as vegetables steadily increased during the socialist period (FAO, 2012). The high potential of crop production was attributed to the Western region and the area benefitted from the building of agro-technical infrastructure, the mechanisation of farm operations and the provision of fertilisers (JICA, 2017a; Worden & Savada, 1991). In Khovd and Uvs Aimag, crop farmers re-

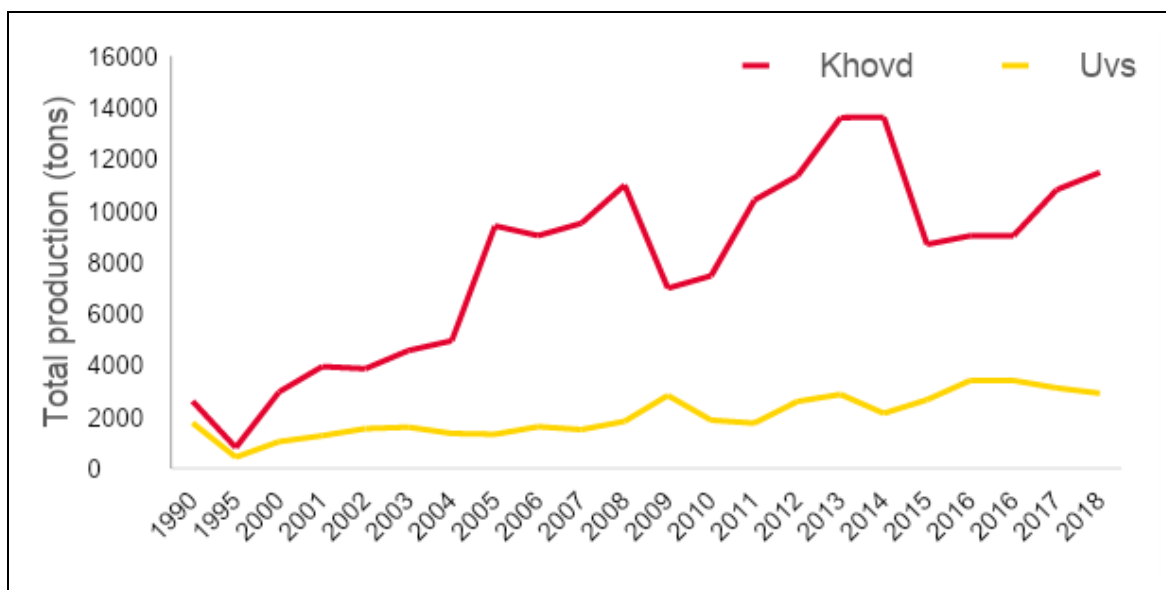
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<sup>3</sup> Fruits of the *Cucurbitaceae* family, such as melons, are here classified as vegetables since they are propagated from seeds and cultivated in vegetable production systems.

peatedly pointed out the positive effect that the construction of irrigation channels and water storages had on their production during socialist times (Og, L16). Following the disintegration of the socialist regime in the early 1990s, state-owned farms were shut down and supply chains for agricultural inputs collapsed which caused a sudden decline in the level of national crop production (FAO, 2012). With the state completely withdrawing from the agricultural sector, irrigation systems were no longer maintained or refurbished. Today, the crop production sector is still considered to be in a process of slow recovery to its earlier capacities in terms of cultivated area and production volume (JICA, 2017a). With the Third Campaign on Reclaiming Virgin Land<sup>4</sup> in 2008, the Mongolian government undertook various efforts to restore the crop production sector resulting in increased production and restored the degree of self-sufficiency in vegetable production to 60 % (FAO, 2012). In 2017, the National Program on Vegetables, Fruit and Berries was launched with the aim to increase domestic production of horticultural products (Yesun-Erdene, 2018). In Khovd, a steady increase in vegetable production was observed after the country's transition. For Uvs, vegetable production has remained at relatively low level throughout the past 28 years but despite increasing gradually since the mid-1990s (Figure 9). Despite a lack of data for the period prior to 1990, recent production increases should be viewed in longer historical context, where, as indicated above, the production of vegetables prior to 1990 was at a much higher level than it is today.

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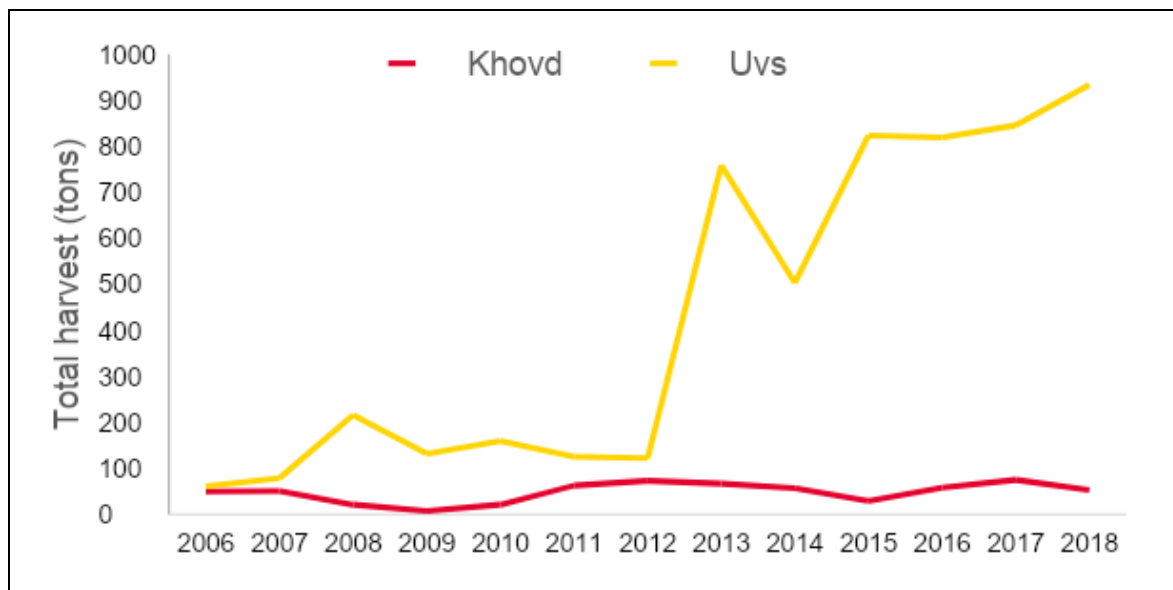
<sup>4</sup> A name referring to similar state efforts that aimed at increasing acreage during the country's socialist period.



**Figure 9: Vegetable production for Khovd and Uvs Aimag from 1990 to 2018.**

Source: NSO, 2018.

Recognising the potential for employment and income in berry production, the Mongolian government launched the Sea Buckthorn National Program in 2010 (Enkh-Amgalan, 2010). The policy aimed to increase the number of sea buckthorn bushes, develop the berry value chain and advertise domestic consumption as well as foster exports (MNCCL, 2013). According to the MoFA, the Sea Buckthorn National Program resulted in 6.4 million sea buckthorn seedlings to be distributed providing employment for 6.048 people in 2014 (Gonchigsumlaa, 2016). The promotion of sea buckthorn cultivation was also part of the section on environmental protection of the 2008 strategy of Uvs Aimag (Laurie et al., 2010). Uvs Aimag also implemented a sea buckthorn development programme in 2006. During its first phase, the programme encouraged every household in the Aimag to plant at least ten sea buckthorn bushes as a source of income. In the second phase, the improvement of berry processing for value addition was addressed (Enkh-Amgalan, 2010). The various efforts undertaken to support sea buckthorn in Uvs may explain the sharp increase in berry yields for the Aimag over the past ten years. Berry production in Khovd, on the other hand, stayed on a rather low level throughout the same period (Figure 10).



**Figure 10: Berry production for Khovd and Uvs Aimag from 2006 to 2018.**

Source: NSO, 2018.

### 6.1.2 Demand

According to the Uvs Department of Food and Agriculture, the Aimag is currently at 70 % self-sufficiency for vegetables (G24). To fill the supply-demand gap for fresh vegetables within the Province, products are commonly imported from China or Khovd Aimag. However, Chinese vegetables tend to have a bad reputation among local Mongolian consumers. The local population of the study site described them as “*of low quality*” and in fact attributed health problems to their consumption (L8, L33). This explains the Khovd Department of Environment and Tourism proud claim to be the only Aimag in Mongolia that is 100 % self-sufficient regarding vegetable production (G4). Even though the export/import statistics for Khovd Aimag may suggest self-sufficiency at an aggregated level, this does not mean that the demand for vegetables in each Soum is sufficiently met. As the governor of Chandmani Soum in Khovd Aimag points out:

*“The little quantity of crops which are locally produced (...) is by far not enough to match the big demand in Chandmani, so we have to get vegetables from other Soums or even China.” (G16)*

At the same time, various producers in Khovd Province transport their produce for sale on markets in neighbouring Provinces as well as to Ulaanbaatar (O1, L17, G4). This points to a mismatch between local demand and supply on the Aimag level. Watermelons might be the only exception since the production of Khovd Aimag exceeds the local consumption for this product by far. Thus, watermelons

are said to be oftentimes cultivated with the explicit intention to sell them outside of the Aimag (L1).

For fruits, no information on regional demand was available. However, different opinions were expressed regarding the national demand for sea buckthorn. As stated by the Chief Executive Officer (CEO) of the Uvs Food Company, the domestic market for sea buckthorn is already satisfied which is why an effective export strategy is needed (P5). On the other hand, the Head of the National Fruit and Berry Association (NFBA) argued that there are no recent market studies which would support that notion (O19). Furthermore, NFBA points out that companies such as Uvs Food should look beyond the consumption of individual consumers at supermarkets and grocery stores and instead focus on the demand for sea buckthorn of public institutions such as kindergartens and hospitals (O19). However, berries only represent one segment of the national fruit consumption. Each year, Mongolia imports between 20.000 and 25.000 tons of fruits such as apples, pears and others, mainly from China. Thus, the domestic fruit and berry production is only able to cater to 1.5 % of the national demand for fruits (Yesun-Erdene, 2018). Since the global interest in nutraceutical foods<sup>5</sup> is supposed to grow in the next decades (Granatstein and Kupferman, 2008; Tsevelmaa and Enkhmaa, 2018), Mongolian sea buckthorn producers see a high potential for the export of processed fruits products (O9, O19). Accordingly, the NFBA points to the need to develop the sea buckthorn value chain due to high international demand. In fact, the Association mentions regular requests for products such as oil, juice and powder from various Asian countries (O19).

### 6.1.3 Modes of production

Based on own observation, horticultural production modes in the study site can be roughly divided in the two categories of small-scale farming and small and medium-sized enterprises (SMEs) (Table 4). The majority of the interviewed berry and vegetable producing individuals or households are best described as small-scale producers. The term comprises of horticultural production for both income generation as well as household consumption. However, small-scale producers rarely consider the sale of their produce as the main source of their income. The production of berries or vegetables merely compliments other income from regular salaries, pensions or pastoralist activities (L15, L16, L17). Thus, horticulture rarely represents the main income occupation for small-scale producers with few

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<sup>5</sup> The term *nutraceutical* describes a food item that also holds medicinal or health benefits.



exceptions confirming the rule (L23, L33). Another feature of this production mode is the low degree of mechanisation and a lack of labour to do the manual work of ploughing, weeding and harvesting (L13, L26). Furthermore, the use of agricultural inputs such as fertiliser and pesticides is rather low. Most of the small-scale producers never received any related formal education or training and admit to possessing only rudimentary knowledge on horticultural practices (L9, L26, L28). These bottleneck factors can have a negative effect on crop yields and may limit the production potential. All small-scale producers in Khovd and Uvs Aimag sell parts of their harvest while relying on the berries and vegetables for their own household consumption. Small-scale producers mainly sell their harvest to nearby processors or at the local market but rarely beyond Soum boundaries. According to the latest census, there are currently 860 small-scale producers of fruit and vegetables in Khovd and 966 in Uvs (NSO, 2018).

Compared to small-scale producers, small and medium-sized enterprises (SMEs) in the study site differ with respect to the area of cultivated land, input and labour availability as well as the share of income generated through sales (P5). Nevertheless, it is difficult to draw a clear line of distinction between the two modes of production. Many of the individuals or households involved in horticulture conform to the criteria of both small-scale producers and SMEs, for example a vegetable producer in Chandmani Soum, Khovd Aimag. Although one producer manages three hectares of crop production with adequate farming equipment and producing five tons of vegetables annually, he stated that horticulture only constitutes half of his monthly income. The other half of his income comes from salaries from various side jobs and livestock keeping (L17). The same also applies for a graduate of the agricultural college who started a greenhouse operation for fine vegetables in Tarialan Soum, Uvs Aimag. Even though this farmer produces one tonne of tomatoes annually and possesses the technical knowledge to optimise fertilisation as well as drip irrigation, most of the field work is still done manually and facilitated only by the full-time help of the elderly parents (L23). Thus, the exclusionary categorisation of small-scale producers on the one hand and SMEs on the other is only of limited applicability and does not fully reflect the complexity of local horticultural production modes. Nevertheless, these two categories are helpful to illustrate the needs and dispositions of the different actors involved in horticultural activities. For the purpose of this study, the terms “producer” and “farmer” are hence used interchangeably and may apply to both production modes. Currently, there are 18 SMEs involved in the production of berries and vegetables in Khovd Aimag and 68 in Uvs Aimag (NSO, 2018). Regarding the ratio

between the two production modes, there are 47 and 14 small-scale farmers to one SME in Khovd and Uvs Aimag, respectively.

**Table 4: Differences between the two main modes of horticultural production.**

	Income creation	Household consumption	Plot size	Sale	Labour	Equipment and inputs
<b>Small-scale producers</b>	Various income activities	Dependent on own production	Rarely more than one ha	At local market upon availability	Mainly family labour	Manual labour and low input use
<b>Small and medium-sized enterprises (SMEs)</b>	Mainly from horticultural sales	Independent from own production	Between one and five ha	Clear selling intention, sometimes sold in other Aimags	Occasional hiring of seasonal labour	Varying degree of mechanisation and moderate input use

Source: Own illustration.

#### 6.1.4 Employment

Tsevelmaa and Enkhmaa (2018) surveyed 41 business entities related to fruit and vegetable production in Uvs Aimag and found 52 out of 187 workplaces provide full-time employment for women. Furthermore, 44 of those workplaces are held by young people up to 25 years of age. Horticulture is thus striking as a sector that provides a considerable number of employment opportunities to women and youth. This was echoed by the Bagh governor of Tarialan Soum, Uvs Aimag who stated that *"Both men and women are working in crop production here. If lack of water and storage could be tackled (...) then this sector could create lots of employment, especially women could grow vegetables."* (G37). The head of the Fruit and Berry Association added that the horticultural sector is inclusive and *"farmers are very diverse: young, old, women, men, everyone"* (O9). Nevertheless, the leader of the SDC VEGI project and head of the Mongolian Women Association stresses the need to differentiate horticultural activities for household and commercial purposes: *"On household level mainly women are involved, on the industrial level men are playing the directors role. Only on the field it is mixed"* (O20).

The general positive outlook on horticultural activities for employment is also shared by the Head of the NFBA in Uvs Aimag by adding that the job opportunities in this sector are accessible for the less educated:

*"I am 100 % sure that people can get income from this sector in the future for a long time. (...) Crop production does not require long-term training or very high education. People can just get short time training and are ready to run a business. So it is also suitable for people of low education levels."* (O9)

However, it should be reiterated that the cultivation of berries and vegetables is seasonal. During the short peak season, the aforementioned 41 business entities in Uvs Province provide 620 additional temporary summer jobs of which 360 are taken up by female workers (Tsevelmaa & Enkhmaa, 2018). Except for the processing of crops, which may be carried out during the winter months, horticultural activities are limited to the growing period between May and September. Since small-scale farmers oftentimes do not possess the equipment required to dry, store or process their goods, they cannot rely on horticultural incomes during the off-season. This fact may make horticultural production less attractive to members of the rural population in search for steady incomes and stable occupations. Speaking on behalf of the younger generation, this was underlined by a board member of the Youth Association in Uvs Aimag: *"Most of the people obviously prefer a permanent job"* (O21).

Despite its seasonality, the horticultural sector reliably provides regular (annual) employment in planting, weeding and harvesting. As previously stated, people do not necessarily need to have a high level of education in order to do these jobs. Thus, seasonal horticultural activities cater to the income needs of the parts of the rural population currently less endowed with (formally recognised) skills. The owner of the vegetable production enterprise in Chandmani Soum, Khovd Aimag, hires around ten people to work on his fields during the high season (L17). They receive 20.000 MNT (USD 7.5) per day and are hired for 22 days on average. Thus, a seasonal worker earns around 440.000 MNT (USD 165) in the harvest season. In Naranbulag Soum, Uvs Aimag, the picking of sea buckthorn and black current is often done by young students from the agricultural college or unemployed people (G31, O21). Berry picking is usually organised as piece-rate work and the seasonal staff receives between 800 to 1.200 MNT (USD 0,3 to 0,4) per kilo of berries harvested. If they manage to find a job for the whole month during harvest, berry pickers might earn around 600.000 MNT (USD 225) during that time (L27 and L25). Thus, despite seasonality, horticultural activities may contribute substantially to increasing the incomes of young students and the unemployed.

However, due to the lack of contractual and legally binding agreements, seasonal horticultural labourers can be quite precarious and susceptible to exploitation by employers. There have been reported cases in which seasonal workers were taken advantage of by employing farmers and only received in-kind contributions in the form of fruits and vegetables in return for their labour (L15, L19).

### 6.1.5 Competition

For sea buckthorn, the CEO of the Uvs Food Company raised concerns over international competition from China and Russia (P5). As all countries use similar technologies regarding the processing of sea buckthorn, the final products are indistinguishable to the consumers. Thus, the domestic production is in direct competition with international companies oftentimes offering their products for much cheaper prices (P5). As confirmed by Gonchigsumlaa (2016), the Mongolian producers have higher production costs than similar operations in neighbouring countries where low labour costs and subsidy-based policies favour domestic farmers. China, being the biggest sea buckthorn producers and exporter on a global scale, thus represents a direct competitor for Mongolian berry producers (Gonchigsumlaa, 2016).

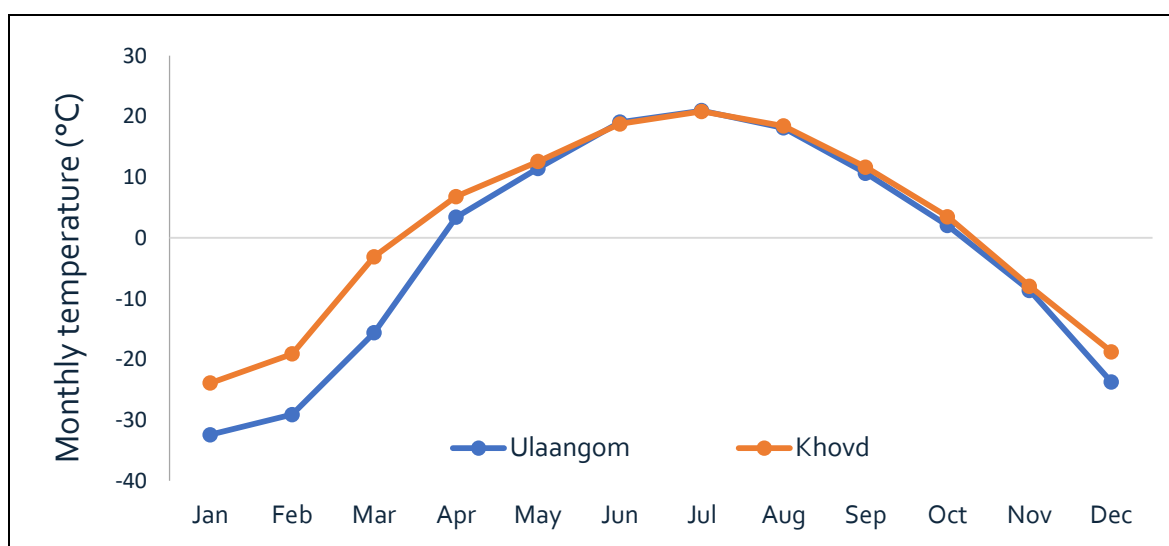
Chinese produce also dominates the local vegetable market in Uvs Aimag, where the kilo prices for onions and garlic coming from China are 500 MNT (USD 0.2) cheaper than Mongolian products. Additionally, the Uvs Aimag's vegetable production encounters a high degree of competition from Khovd Aimag which impacts local prices. A small-scale fruit and vegetable producer at the Ulaangom market, Uvs Aimag, explained:

*"Farmers from Khovd use more chemical fertiliser so their prices are lower. The prices at which we can sell our products on the local market really depend on the prices for products from Khovd. If vegetables from Khovd are cheaper than our products, then we cannot sell ours for higher prices."* (L32)

This inter-regional competition of producers from Khovd and Uvs thus creates pressure for local producers with higher production costs due to the differences in resource endowment between the two Aimags. This results in surplus supply of selected goods such as watermelons from Khovd Aimag. As they are commonly sold on the local market in Uvs Aimag, local vendors are forced to adjust their prices accordingly which leads to diminished profit margins.

## 6.2 Capacities and resources for horticultural production

Extreme fluctuations in temperature, long winters, and low rainfall are all factors limiting the potential for agricultural development in Mongolia (FAO, 2012). Therefore, horticultural activities in the study site mostly take place in valley areas and lake regions better suited to berry and vegetable production. As an associate professor from the MULS agronomy institute explains, those agro-ecological zones show a milder climate since the number of warm days is higher when compared with other regions in Khovd and Uvs Aimag (A11). As weather records from Khovd and Ulaangom show, there are only seven months in which the average temperature is above 0 °C (Figure 11). The low temperatures result in a short vegetation period between 95 to 100 days (FAO, 2012, p.23). Thus, the timeframe that allows for horticultural production is very limited. Vegetables are usually planted in late May and harvested during September.



**Figure 11: Monthly temperature (average over 2005 to 2018) for Ulaangom and Khovd.**

Source: NSO, 2018.

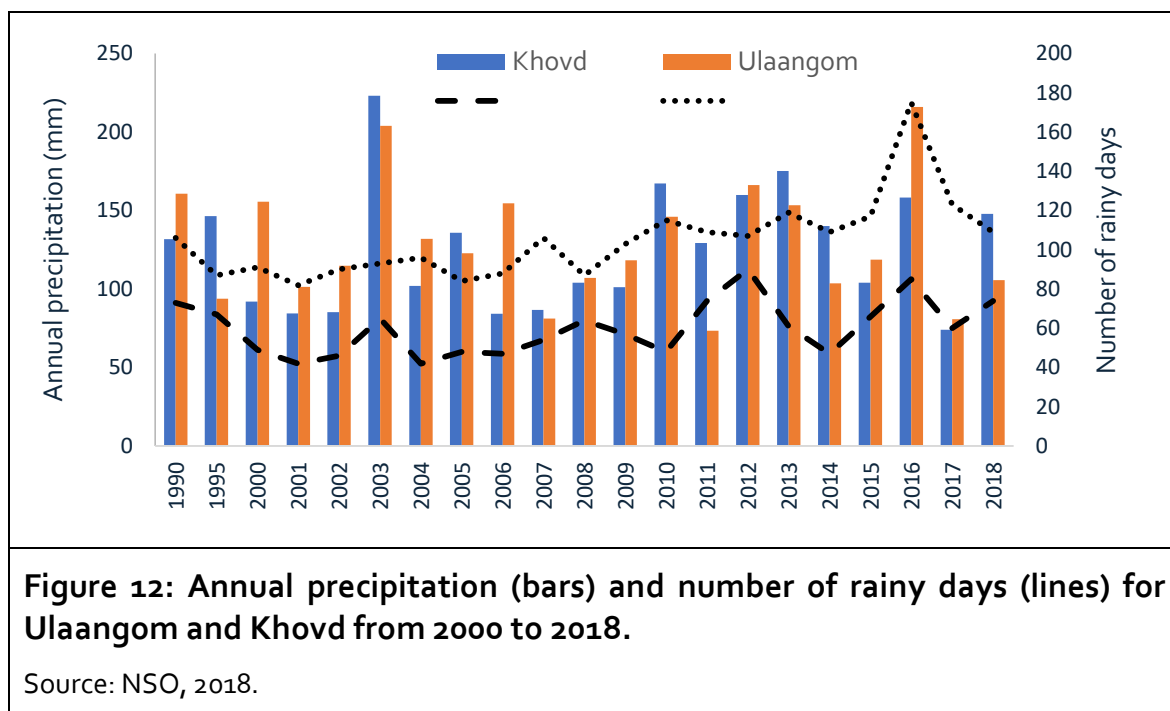
As the average temperatures for April and September are generally higher in Khovd than in Ulaangom (Figure 11), the vegetation period in Khovd Aimag is slightly longer. Crops like watermelon requiring a higher number of warm days can thus be cultivated there (A11). In Uvs Aimag, on the other hand, the cold and long winters present a significant obstacle for crop production as the respondent from the Department of Food and Agriculture stated (G24). Not many horticultural crops are able to withstand the cold temperatures. The Uvs Food Company

once tried to plant apples on a larger scale but lost all the trees due to freezing. As the CEO of the company points out, *"the harsh winter alone is quite a challenge"* (P5). Many farmers thus prefer the cultivation of sea buckthorn since the plant is well adapted to the extreme temperatures in Uvs Aimag (L33, P5).

Aside from harsh winters, the hot and especially dry summers also present a limiting factor on horticultural production in the study site. As mentioned in Chapter 5.3.1, climate change and increasing summer temperatures exert an enormous pressure on the local population. The agricultural specialist at the Meteorological Institute in Ulaangom states that *"in recent years the number of very hot days increased which has negative impacts on crop production"* (A6). The participants of a focus group discussion among small-scale producers in Buyant Soum, Khovd Aimag, shared this perception:

*"It is hotter, and we experience higher temperatures than in former years (...). It gets hotter and our plants do not grow very well. We do not have any adaptive strategies for our crop production to deal with that."* (L2)

Regarding precipitation, the weather stations in Khovd and Ulaangom show an average annual rainfall of 125 and 129 mm, respectively (Figure 12). Those low amounts of precipitation make rainfed horticulture in the study site impossible and stress the need for irrigation. The significant year-to-year fluctuations in rainfall furthermore complicate agricultural management decisions of *what* and *when* to plant. While the total amount of annual precipitation in Khovd and Ulaangom is almost equal, there is a substantial difference in its distribution. There are 105 rainy days on average per year in Ulaangom and only 60 in Khovd (Figure 12). As more precise data on precipitation intensity was not accessible, it could only be speculated that the rainfall in Khovd Aimag is generally sudden and strong while Uvs Aimag has comparatively lighter and more frequent rains. The latter is preferable from a horticultural perspective due to the otherwise high risk of water erosion and surface run-off.



As stated earlier in Chapter 5.3.1, there is an increase in rainfall variability due to climate change. According to a specialist from the meteorological institute in Khovd (A4), this applies both to frequency and intensity of precipitation as short and hard rainfalls, flooding and drought become more common. Consequently, both the sudden exuberance and a seasonal lack of water may become a more prevalent problem for horticulture in the study site. In Chandmani Soum, Khovd Aimag both the environmental inspector and a local farmer mentioned the frequent occurrence of droughts as the main climatic change they observed over the last decades (G15 and L16). Likewise, small-scale vegetable producers in both Uvs and Khovd Aimag remembered the impacts of heavy rain on their production:

*"Sudden floods appear more often, and this is a problem. In 2010, there was such a heavy rain that vegetable production was destroyed, and plants were carried away by the water in the soil and on the surface."* (L17)

*"The paved road was covered by the flood this year. It is also a problem for the plantation. When it rains a lot, the flood is going over my field. The last flood destroyed the greenhouse."* (L25)

As Batkhashig (2015) points out, there is a connection between temperature rise due to climate change and the degradation of soil: as the soil cover dries out, soil compaction and sealing are more likely to occur. Together with an acceleration in the decay of soil organic matter, surface runoff and water holding capacity decrease. As the frequency of droughts or floods is expected to increase in the

future, climate change adds additional risks to the availability of natural resources and represents a potential source of conflict for the rural population (Rasmussen & Annor-Frempong, 2015).

### 6.2.1 Natural resources

#### Water

While there is data uncertainty about the exact current use ratio of water resources and its sustainability in Western Mongolia, it is agreed that water is the main limiting factor in agroecosystems (Jordan et al., 2018). The availability of water is already spatio-temporally limited and this scarcity will most likely be exacerbated by climate change in due to a higher rainfall variability, melting glaciers and higher evapotranspiration caused by increased temperatures in the long run (ADB, 2017; JICA 2017; MoET, 2014; UNDP, 2017; US Aid, 2017). In this light, the questions must be raised as to *where* and *how* horticultural production is and will be affected by or influences water availability as well as water accessibility in the study area.

Indeed, almost all interviewed farmers, government officials, local academics, and other organisations across the study region stated low or declining water availability and accessibility as one of the main factors limiting horticulture production. As a small-scale farmer from Chandmani Soum, Khovd Aimag put it:

*"Main concerns for crop production? Water availability and allocation!" (L20)*

Only those individuals who possessed their own well (L23) or whose fields were located upstream (P6) did not face any water problems. As there is "significant spatial variability in water availability and demand" in the project region (ADB, 2017, 11), reasons for limited water availability were not generalisable and varied among different interviewees in different locations. Whereas in some Soums surface and groundwater sources were naturally rare (G21), too many users and unsustainable water use practices were identified as main causes for low water availability in other regions with more plentiful natural resources (G8). However, a trend of decreasing overall water availability in rivers (G2) and increasing seasonal variability of water availability (A7) was repeatedly reported. Water resources in the study site are managed and monitored by two River Basin Administrations (RBAs), the Khar Nuur-Kovd (G18) and the Uvs Nuur-Tes Basin Administration (G25) which were established in 2012 under the MoET. The administration entities are responsible for sustainable resource use by developing Integrated Water Resource Management (IWRM) plans and supporting local governments with the implementation thereof. In two interviews with representatives from respective



RBAs of Uvs and Khovd Aimag, the current state and issues of water sources (used for horticultural production) were discussed and summarised in the following segments for both Aimags:

In *Khovd Aimag*, 80-90 % of used surface water goes to crop production (G18). The main horticulture production area is located in Buyant Soum around Buyant River where almost all households pursue some sort of farming (A2). Due to many users and unsustainable using practices by farmers and herders in the summer, the small Buyant River with its estimated capacity of 112-179 million m<sup>3</sup>/year falls dry and does not reach Khar Us Lake anymore (G18). This is in line with a 2010 re-search for the IWRM plan which finds the demand in the region to reach up to 127-145 m<sup>3</sup>/year which translates to 97 % of the river's flow (Khovd RBC, 2010). Accordingly, the local Soum governor states that "*Buyant River is not enough to cover the current level of crop production*" (G8). While the original IWRM plan was aiming for a doubling of irrigated area in Buyant, the head of the Khovd River Basin Organisation (RBO) was hesitant about this proposal. She stated that the focus should lie not on expanding but on sustaining the current irrigation area and solving water management issues first. Still, the local Soum governor would like to tap into the much bigger Khovd River for crop irrigation which holds the capacity to provide "*for another 5-6.000 ha of crop production (based on pre-1990s studies), thus twice the current production area*" (G8). Indeed, data from the 2010 study suggest that Khovd River supplies 1.561-2.365 million m<sup>3</sup>/year while the current demand from this Basin is only 274-373 million m<sup>3</sup>/year (Khovd RBC, 2010).

However, it should be considered that the environmental flow rate of rivers in this region is estimated to be 90-95 % (JICA, 2017a) and thus severely limits the sustainably withdrawable amount, suggesting that this threshold might have already been exceeded (Khovd RBC, 2010). The head of the RBA also argued that water from Khovd River cannot be extracted or rerouted due to potential conflicts with a downstream hydropower station. The Soum governor had no knowledge on or funding for suitable technologies for providing water from rivers to the Soum centre (G8). For other Soums of Khovd Aimag where horticulture production is not well established, no data was available about river capacities. Still, the head of the RBA claimed that in Munkhkhairkhan there would be "*no issue regarding water availability*" (G18), while in Chandmani there would be an issue with surface water availability which is why groundwater is needed (G18). Indeed, the Vice Soum governor confirmed that water availability is the "*biggest challenge and limiting factor*" in Chandmani Soum as there are only two small rivers along which the soil is suitable. This led all farmers to gather along these rivers, limiting the amount of water for each of them (G21). As a local Bagh governor stated, the low

availability is further exacerbated by decreasing water levels (G14). Theoretically, there would be plenty of water available in the nearby lakes, but one lake is a saltwater lake and the soil near the two sweet water lakes is not fertile. Thus, they see the exploration of groundwater as the only viable option (G18, G21) but *"groundwater is approximately 30 m deep, it is too expensive"* (G21). Either way, it must be considered that groundwater resources in the study region have not been studied since the 1960s (G18), thus the theoretically sustainably extractable amount (groundwater renewal rate) is unknown.

As part of an integrated and sustainable water resource management (IWRM), the groundwater availability needs to be studied and sustainable usage limits need to be determined before exploitation on a large scale, e.g. for horticultural production, happens in order to avoid overstepping the natural renewal rate of groundwater resources and to be able to plan a sustainable future usage, especially adapted to the climate crisis.

In general, in Khovd, there seems to be a vast discrepancy between the future plans of government officials regarding water and irrigation and the estimated potential of water resources by RBA, Water User Federation and local academia in the study region. While the Buyant Soum governor and the head of the Department of Food and Agriculture want to vastly increase the irrigated area in Buyant (G8, G6), the head of the RBA sees *"not much potential"* for this due to water scarcity and limited land in the area (G18). Meanwhile, the head of the Department of Investment and Development Policies even plans to increase the irrigated area in Khovd Aimag by ten times as part of an Asian Development Bank (ADB) programme to establish so-called "agro-parks" (G7) which the RBA calls *"unrealistic as even with the current system there are many problems, so how can we expand the system so much?"* (G18). These doubts were also shared by the head of the local Water User Federation who stated that water levels have been getting lower and that this trend will be continued year by year in the future so that soon the amount of water will be insufficient (O22). Moreover, the head of the Department of Biology from Khovd University finds the above-mentioned plans to be *"very impossible"*, as she thinks that new, untapped places with groundwater reservoirs should be identified for expansion of crop production, as otherwise, if water from the river basins is continued to be used, *"the Khar Us Lake might disappear"* (A3).

Meanwhile in Uvs Aimag, 75-83 % of used surface water goes to crop production, with almost all producers using surface water (Uvs RBA, 2015). The main horticultural production area is located around Ulaangom along the Kharkhiraa and

Turgen River basins which are fed by Uvs Lake (G25). Water availability thereby strongly varies throughout the year:

*"In the beginning of spring and end of autumn, the water is enough because the snow melts during this time and also the crops do not need that much. But during the summertime, when farmers need most irrigation, the surface water is not enough."* (G25)

Also, climate change might be responsible for the observed and future expected decreasing water supply by Kharkhiraa and Türgen River (G2, A4, A6, A7) which is currently researched (G25). Concerns were thus raised by local academics that in the long-term, the water resources will diminish up to an alarming degree due to decreasing summer precipitation and the melting of glaciers that mainly feed local rivers. In general, the main current issue in Uvs Aimag seems to be a mismatch between the location of available water resources and the location of suitable arable lands regarding soil and climatic conditions, rendering improved irrigation technologies necessary, as a water specialist of the RBA explained:

*"57 % of the Tesiin River goes to Uvs Lake. The soil close to this big water resource is very sandy, so crop production is not possible there. Ulaangom is more suitable than the other Soums for crop production. There, however, there the water resources are not the best."* (G25)

The government is trying to tackle some of these water availability issues in the region by engaging in artificial rainmaking through cloud seeding – with mixed results (L2). Due to uncertainty in the scientific debate about the effectiveness of this method (Moseman, 2009) – other approaches such as water storage technologies might be more promising (G37). In this regard, various government officials and both RBAs attributed high potential to artificial snow melt ponds (G14, G18, G25, G32, G35). These were successfully installed in some Soums but come with very high investment costs. Thus, the demand for large-scale (donor-funded) water projects was expressed in this Aimag:

*"The Uvs water basin would have enough snow to support an artificial lake. But we do not have the technical and financial support to build one. But there are so many small projects related to water, e.g. installing greenhouses with drip irrigation. Some of those projects are funded by international organisations. Instead, we should really have a big investment and build this lake. We have the science enough, but not the budget."* (G25)

Next to water provision, an efficient use and management of water was discussed for *both* Aimags. The head of the Department of Biology at Khovd Univer-

sity pointed out, that the cultivation of the Aimag's famous watermelons requires a high amount of water (A3). Instead, the promotion of water-efficient crops could be a cost-efficient solution towards a more sustainable use of water in horticulture in the study area. Indeed, a study on the Bulgan River Watershed in Khovd found vast differences in irrigation water productivity between different locally grown crops. As a main finding, the authors identified sea buckthorn as the most beneficial crop regarding farmers' income as well as expected water scarcity in the future (Jordan et al., 2018). Finally, an important role in the management of water resources lies in the above-mentioned River Basin Organisations as they are an institution at the intersection of government and the local population/water users. In Khovd Aimag, however, the IWRM plans are rarely taken into account for implementation by the local government (G18). Moreover, an assessment of nationwide RBOs by the ADB found that the institution lacks executive power due to an unclear and weak legal status and adequate funding (ADB, 2017). Another study adds that fiscal decentralisation and sustainable river basin management are, so far, hardly mutually supportive e.g. due to overlaps in administrative tasks and uncertainties regarding allocation of water-use fees – sparking competition rather than collaboration – between RBAs and Aimag environmental authorities (AEAs), thus pointing to the need for various legal and financial adjustments of those institutions (DIE, 2018).

## **Soil**

The arable soils of Mongolia are generally light and silty with an organic matter content of 3 to 4 % and slightly acid (pH between 6 to 7) (Pöschk, 2016). Since horticultural production in the Western Aimags usually takes place along the course of rivers, Fluvisols and Cryosols are soil groups typically found in those floodplains (Jordan et al., 2018). No detailed information on the condition of arable soils in both Khovd and Uvs Aimag was available in the English language at the time of this study. As the professor for soil science at the MULS informed us, the nationwide database for soil resources is still incomplete and lacks high resolution data for all Aimags (A10). As the study site is an area of extreme temperatures, drought and short transitions between seasons, local climatic conditions result in limited soil moisture (Beher, 2014). The connection between temperature and soil moisture retention was also confirmed by the Meteorological Institute of Uvs Aimag. As their technical engineer (A6) explains, there is a negative correlation between extreme weather events of cold temperatures and soil moisture content. As a result, the formation of soil only occurs in thin layers which are easily worn away. According to the crop science teacher at the polytechnic college in Ulaangom, the

quality of arable soils in Uvs Aimag are currently threatened by a severe degree of erosion (A5). Since the light texture of Mongolian soils does not allow for a high moisture retention, the soils are especially vulnerable to both wind and water erosion (Pöschk, 2016).

Next to the contamination by chemical pesticides, the loss of topsoil is the main cause for degradation and decreased fertility of arable soils (A10). The Soil Science Society of Mongolia estimated that during the last 30 years, an amount of 35 to 50 tons of soil have been lost from each hectare of cultivated land due to wind erosion alone. As a result, a total area of 0.7 million hectares of arable land was abandoned in the last years (Batkhashig, 2015). Correspondingly, both farmers and scientists recognise soil erosion as a long-term risk to horticultural production (Rasmussen & Annor-Frempong, 2015).

The observation of decreasing soil fertility was also made by the local population in the study site. In Khovd Aimag, a 56-year-old berry farmer of Chandmani Soum remembered that *"previously there were 250 ha of crop production in our Soum, but now that land has all eroded"* (L16). Commenting on the situation in Uvs Aimag, the director of the Institute for Plant and Agricultural Research (IPAS) states:

*"I used to be able to say that we have such a rich soil here in Uvs, but it's been getting worse and worse during the past years (...)." (A7)*

However, crop production is not only suffering from soil degradation but might also be a significant cause of it. As unsustainable agricultural practices such as mono-cropping exploit soil nutrients and create pollution through the inexperienced use of chemical pesticides, horticultural production potentially represents a big threat to soil resources in Mongolia (Pöschk, 2016). This is what the crop science teacher at the polytechnic college in Ullangom (A5) points out with the comment *"sometimes they [the farmers] destroy the soil themselves"*. Likewise, the Director of the water user's federation in Khovd Aimag found that the growth of the horticultural sector would likely bring *"negative effects on the environment. Soil degradation will occur"* (O22).

### **Plant genetic resources**

There are approximately 845 species of medicinal plants and 120 species of plants, including trees, berries, grasses, and wild onions that are commonly being used as food sources in Mongolian food customs (UN-IAS, 2004). Of those, over 60 species are natural occurring wild fruit and berries. This diversity of natural wild species presents a great reservoir of plant genetic resources that can potentially

be used for developing new cultivars of (semi-)domesticated food plants (Oyungel et al., 2015). As the diversification of food crops plays a vital role in securing food and nutrition security, Mongolia's plant genetic resources (PGR) may serve to a great purpose in the future (Bayarsukh, 2015). However, various members of local population in the study site stated that they observed a concerning decline in agrobiodiversity during their lifetimes. A herder (50 years old) from Buyant Soum, Khovd Aimag (L3), remembers that there used to be 20 different kinds of medicinal wild plants which they used for treating various human and animal diseases. Now, she can only find five of them in the area. As a professor from the Department of Biology at the University of Khovd (A3) explains, the decrease of medicinal plants is a result from the effect that the changing climate has on plant communities. Furthermore, she points out that the diversity of wild plants is likely to decrease as the area of cultivated land increases. Thus, Mongolia's PGR represent a great opportunity for, and are simultaneously threatened by, crop production.

Systematic crop breeding in Mongolia started during the 1950s with technical support from the Soviet Union. To increase the performance of indigenous varieties, exotic breeding material from other countries were introduced as an additional source for superior genes (Altansukh, 1995). The IPAS in Ulaangom, Uvs Aimag, has always played an important role in the development of new varieties and the *ex-situ* conservation of PGR. Currently, the IPAS stores 513 accessions of cereals (Bayarsukh, 2015). During the 1980s, they released three new cultivars of sea buckthorn (*Ulaangom*, *Chandmani* and *Tes*) by introducing genetic material from local wild sea buckthorn populations (Altansukh, 1995). Even though they showed desirable fruit characteristic and were well adapted to the local agroecosystems, those cultivars fell into oblivion and were replaced by Russian cultivars after 1990:

*"Before 1990 we had three Mongolian varieties. Although they were smaller and more difficult to pick the advantage was that they contained more oil and were more resistant against diseases. But they disappeared. Until 1990 it was a successful time, we had more experts and government support. Since 1990 I would call it a time of failure for fruit and berry research."* (A7)

The notion that plant research and breeding was largely neglected during the transition period is shared by many scholars (Altansukh, 1995; Bayarsukh, 2015). But according to the IPAS, the sector has slowly recovered in recent years as experts pay more attention to new varieties of plant species (A7). Another public actor involved in developing and protecting PGR is the National Fruit and Berry Association (NFBA). The activities of NFBA in Uvs Aimag include varietal selection

and the protection of PGR of wild sea buckthorn to secure them for the future (O9).

As sea buckthorn has been cultivated in Uvs Aimag for many decades, the genetic material from pure-breed varieties and wild plants have crossed. Accordingly, most of the bushes found in farmers' fields hold a combination of different sea buckthorn genes from domesticated and wild plants from Russia as well as Mongolia (O9). Since farmers are oftentimes unable to distinguish the different mixed varieties that they are growing, they cannot reliably guarantee uniformity of fruit characteristics. The resulting quality fluctuation of the berries constitutes a difficulty for entities that process sea buckthorn like the Uvs Food Company (P5). In order to tackle the problem, the company imports elite, pure-breed seedlings from Russia and distributes them to their suppliers. The NFBA in Uvs Aimag, on the other hand, is currently following a different approach by working on the release of a new local variety that incorporates desirable characteristics of wild PGR. This example illustrates the lack of coordination concerning PGR management on a local level.

### 6.2.2 Production techniques and equipment

#### Horticultural practices

According to the IPAS, vegetable producers in Uvs Aimag show a tendency to plant the same crops year after year and never allow for regenerative fallow periods that allow the soil to recover (A7). Only one of the surveyed vegetable producers indicated to "*practise shifting cultivation in order to maintain the soil quality*" (L28). Thus, the Institute for Plant and Agricultural Science stressed the need for crop rotation as a commonly applied good-agricultural practice. As a professor of soil science at the MULS added, on-farm production of legumes as a cover-crop should be increased in order to improve soil fertility through biological N-fixation (A10). Currently, farmers do not favour legume production due to its low financial return. To increase production sustainability, the professor thus recommended legume production and plant rotation to improve nutrient efficiency for small vegetable farmers.

Another problem is the lack of soil-conserving management practices. As the IPAS point out, horticultural producers in Uvs do not cover their fields in winter:

*"After the harvest, they just leave the soil as it is – no ploughing, planting or covering."* (A7)

As discussed before, Mongolian arable soil is at a high risk of wind and water erosion. The practice of *black fallow* – to leave the soil without vegetation – increases that risk due to the absence of plant roots and above-ground biomass that breaks the wind and holds soil particles (Wawer et al., 2013). The cultivation of cover crops to protect the soil surface is recommended as a sustainable agricultural practice. Furthermore, cover crops can help increase moisture retention of water as well as snow and improve soil fertility in the case of legumes (Bachmann & Friedrich, 2012). Soil fertility, as mentioned in Chapter 6.2.1, is often cited as a limiting factor for horticultural production in the study site. According to the soil professor at MULS (A10), this issue could be addressed by using organic matter such as plant residues:

*"For fertilisation, you need to focus on the material that is free and locally available. Farmers in former times knew how to make compost on a small-scale level. We never had composting enterprises. But it should be done."* (A10)

Even though composting appears a cost-effective method to produce organic fertiliser, it was rarely practised by the horticultural producers. With the exception of a small-scale vegetable farmer from Munkhairkhan (L13) and a seed producer from Ulaangom (L33), none of the surveyed producers were making or using compost to improve soil fertility. The reason for that can only be speculated, but could be due to a lack of experience or resource competition over harvest residues which also represent a nutritious source for animal fodder. Vegetable producers in the study site commonly used animal manure upon availability for fertilisation purposes.

For sea buckthorn production, the National Fruit and Berry Association developed strict regulations on the use of fertilisers for its members. As a berry farmer from Khovd Aimag (L5) explained, she is not allowed to apply chemical fertilisers on her field but only local sheep dung. The association regularly monitors her application of fertilisers. The monitoring can be easily done by consulting the *field history book* which every Mongolian berry or vegetable producer is supposed to own. Information such as the origin of horticultural crops, date of planting and exact input use should thus be accessible to all horticulturalists. The reliable documentation of farming practises in the field history book is a mandatory requirement to join many agricultural associations like the NFBA or the association of seed producers (O16). The availability of small-scale farming records makes it possible to monitor changes in production and allows for capacity building measures aimed to improve management practises.



### Irrigation

In the study region, furrow irrigation is the prevalent watering technique for open horticulture fields (Baranchuluun et al., 2016). While only few interviewed farmers received their water from a well (L8, L23, L31), the vast majority took it from a nearby river. From there, the river water is usually transported via gravity through earthen conveyance canals from which it is diverted to the farmers' fields by manually constructed soil barriers. While furrow irrigation canals already possess a low water conveyance efficiency leading to high water losses (Baranchuluun et al., 2016), the generally poor condition of irrigation canals in the project region further limits efficient water use (ADB, 2017). According to Jordan et al. (2018), 72 % of all irrigation channels in Bulgan Soum, Khovd Aimag, are in need of maintenance. In the study site, the maintenance and periodic rehabilitation of local irrigation canals is the responsibility of local Water User Groups (WUGs) (ADB, 2017). In Uvs Aimag, however, those WUGs are non-existent in the Soums with exception of Ulaangom (A5). In Khovd Aimag, WUGs are quite common and exist in various Soums with more than 800 members. They are organised by the Water User Federation, an NGO founded by SDC and WWF (G18). However, the Water Users Federation chronically lacks money and in turn often makes the farmers themselves responsible for both the maintenance of their own fields as well as for the distribution canals (Jordan et al., 2018). The farmers, however, face difficulties managing these tasks due to limited financial possibilities and labour power (Barrett et al., 2017).

Meanwhile, the Department of Food and Agriculture and the local Soum governments are responsible for construction and maintenance of larger-scale conveyance systems which transport water from sources located further afield to the local distribution systems of the farmers (ADB, 2017; G8). However, in most places, no such systems exist, which a teacher for Crop Science of the Polytechnic College in Ulaangom called "*one of the main challenges for crop production in Uvs Aimag*" (A5). Even the few existing government conveyance systems, of which a considerable amount were built during the country's socialist period, encounter problems after the transition to a market economy due to the lack of investments and/or maintenance (Barrett et al., 2017; G6). While in Buyant most of the formerly built smaller 15 engineered irrigation systems are out of order due to theft of some parts (Khovd RBC, 2010), also in Uvs there are only three Soums with a conveyance system. A local Bagh governor from Tarialan Soum (G37) explained that a new irrigation/conveyance system is needed but that they were unable to afford it. Thus, the farmers depend on an outdated machine from Soviet times which conveys water over a distance of 15 km through an underground pipe. However,

the installation severely lost water carrying capacity during the last decades and now only provides water for 200 instead of the formerly 2.000 ha of land due to a deterioration of the infrastructure (G21).

Another main issue regarding irrigation is the shortage of water supply to satisfy the demand of all farmers as well as an unequal distribution among upstream and downstream users. Wasteful water use by some groups is also a contributing factor to shortages. Where Water User Groups are established, water sharing schedules are usually agreed upon and followed (G25). However, the scheduling does not always allow farmers to water their fields with a sufficient frequency which has a negative influence on their crop health and yields (G25, G32, G37, L16). Even in the presence of water user schedules, downstream farmers are sometimes at a disadvantage (G25).

The unequal distribution of water was exemplified in Chandmani Soum, where an upstream farmer claimed to be able to water his field four times a week while a downstream farmer stated they could only irrigate once every two weeks, despite a water user agreement in place (L17, L18). In general, it can be observed that upstream farmers have fewer challenges with water availability. This raises the concern of elite capture and the question of how exactly land for plantation is allocated in the study region. Especially in Buyant Soum, unequal water distribution and unsustainable resource use lead to conflicts among farmers and between farmers and herders. Especially upstream herders or farmers are reported to wastefully spill over irrigation channels to water their crop or hay fields which leads to the drying out of Buyant River in summertime (G8; Khovd RBC, 2010). The head of the Khovd River Basin Administration stated that attention should be given to improving the current irrigation systems and resolving conflicts by re-strengthening the afore-mentioned NGO and WUGs (G18).

Finally, both farmers (L2, L9) and government representatives (G24, G25) as well as local academia (A7) and international donor organisations (ADB, 2017; US Aid, 2017) agree that improved irrigation systems will play a crucial role in adapting horticultural systems in the study area to a future under the climate crisis. While local studies show that crop yields might be improved by up to 46 % through optimised irrigation management practices (Jordan et al., 2018, p.187), modern technologies like spray irrigation and drip irrigation were often discussed and requested by local farmers (G37, O19). With the latter being already in operation in some greenhouses across the study region (L23), independent studies point out the cost-benefit advantage of drip irrigation systems in comparison to other

irrigation techniques. However, the implementation of such technology is impeded by comparatively high investment costs (Baranchuluun et al., 2016).

### **Mechanisation**

Compared to other agricultural sectors, vegetable production has shown the least improvement since 1990, partly due to a lack of mechanisation and technical knowledge (Rasmussen & Anor-Frempong, 2015). The notion that vegetable production is constrained by a lack of adequate equipment to reduce the physical workload was shared by many farmers across the study site. Both soil preparation as well as planting and harvesting are usually performed manually (L33, L26). The manual horticultural labour is perceived as very hard and makes employment in this sector unattractive to the local population (L17, L33). The low degree of mechanisation may present a limiting factor to the overall development of the horticultural sector. A member of the association of seed producers in Uvs Aimag states:

*"The main challenge is our mode of production because it depends on manual labour. Mechanisation and automatisisation are required. If these problems are not solved, then we don't even have to start talking about the horticultural sector employing more people in the future."* (L33)

The same issue can be observed in berry production. According to the NFBA, advancement in agrotechnology is required to increase the cultivation of fruit and berries (O19). Since some bushes have spikey thorns which make the work unpleasant, the association puts emphasis on the need for mechanised harvest technologies for sea buckthorn. Since berry bushes are perennial plants, the weed control in the plantation presents another challenge. Currently, the cutting of weed is either performed manually or not done at all due to the high work load and a lack of available labour (L9, L16). Accordingly, many of the sea buckthorn or black currant plantations in the study side show an enormous weed pressure which complicates harvesting and might have negative implications on overall yields.

Together with inefficient water use, it is oftentimes the lack of mechanisation which makes horticultural production financially marginal and uncompetitive with imports in Mongolia (JFPR, 2017). Within the frame of the Sustainable Development Vision 2030, the Mongolian government and the MoFA stated to improve horticultural production and meet 100 % self-sufficiency for local vegetables in 2025. Their strategy is to address small-scale producers and introduce on-farm mechanisation, greater use of greenhouses as well as water-saving irrigation techniques (JFPR, 2017).

Considering climate change impacts, such policies and interventions gain even more relevance. Extreme weather events such as unseasonal frosts can cause harvest losses of up to 30 % (Altansukh, 1995). In order to prevent such yield failures, adequate harvest technology and mechanisation is indispensable to harvest vegetables in the shortest possible time. Since the production of small-scale producers is often limited by a lack of available work force, labour saving technology has the potential to benefit their horticultural activities.

### Fencing

As small-scale producers we surveyed grow their products on a separate plot which cannot always be monitored, fences are necessary to protect the plants from roaming livestock. The fences are usually constructed from wooden posts and a mesh wire. With time, however, maintenance is required and farmers make provisional repairs with locally available materials such as discarded car parts or metal chairs (Figure 13).



**Figure 13: Fenced vegetable field in Chandmani soum (left) and fences repaired with local materials (right).**

Photo: Wiebke Beushausen.

There were cases reported in which inadequate fencing led to conflicts between farmers and herders as grazing animals managed to enter the planted area and destroy the harvest (L25). During growing season, the situation can be worsened to such an extent that farmers must stay within reach of their plots both day and night to protect their vegetables (JFPR, 2017). According to the head of a community-based conservation group in Chandmani Soum, Khovd Aimag, a func-

tioning fence thus is one of the “*requirements to successfully start vegetable production*” (O5). The same holds true for berry farming, where building fences is one of the non-tradeable investment costs next to digging irrigation canals and buying inputs (Gonchigsumlaa, 2016). However, the investment needed to acquire adequate fencing is a financial burden which may be difficult to overcome for a large part of the local population. The agricultural specialist of the Soum government in Munkhhaikhan, Khovd Aimag, calls the gap in finance for fence construction one of the main obstacles for horticultural production in that area (G10). A sea buckthorn farmer in Munkhhaikhan claims that she was very lucky to receive a loan over 10 million MNT (USD 3.743) from the local bank which she spent entirely on fencing three hectares of sea buckthorn cultivation (L17). The notion that fencing represents an entry barrier for horticultural production was confirmed by various producers of berries as well as vegetables in the study site.

### Greenhouses

While only few greenhouses are in operation in the study region, they offer a potential to improve crop production around the year by substantially extending the growing season. In the study region, farmers planting their crops outside are restricted to the timeframe between June to September which only allows for one harvest. Meanwhile, those farmers who possessed a greenhouse reported that they were able to harvest twice (L31), with the growing season, in effect extended to between April and October (L16, L23). A Crop Science teacher from the Polytechnic College in Ulaangom explained how an ideal two-harvest system in a summer greenhouse should look and how the growing season could be even further extended:

*“A two-harvest system would be: Plant the first generation of seedlings in February, transplant it into the greenhouse in the beginning of May, and harvest it in July. Then, plant the second generation of seedling in May, transplant it into the greenhouse in August and harvest it at the end of October. Optimal would be a winter ‘four-season’ greenhouse, but this has very high costs. Some farmers are already making their own ‘three-season’ greenhouses by putting in an oven for heating.” (A5)*

With an extended growing season and higher temperatures inside the greenhouse also comes the opportunity to grow a wider variety of crops: While farmers *without* a greenhouse almost all grew only the same five crops – potato, carrot, turnip, beetroot and cabbage (plus watermelon in Khovd) – farmers *with* a greenhouse additionally grew cucumber, tomatoes (L16, L17, L25) and many more so-called “fine vegetables” like eggplant, broccoli, spinach, pepper and lettuce (L16, L21, L23, O16). Greenhouses also enable seed and seedlings production e.g. for

sea buckthorn (O16, L21). As market prices for “fine vegetables” (5.000 to 8.000 MNT/kg) inUvs and Khovd are much higher than for the five “mainstream vegetables” (1.000 to 4.000 MNT/kg), greenhouses can also lead to higher profits for the respective farmers (L32). Accordingly, a farmer from Khovd Aimag explained that he was quickly able to repay the loan which was taken up for financing the greenhouse thanks to the high prices of his tomatoes (L23).

Despite the observed advantages of greenhouses, some issues and factors hindering people from attaining greenhouses were reported in the study region. The main reason among interviewees against attaining a greenhouse was the high initial investment cost, especially for small-scale farmers who were often interested but did not have the financial means (L2, L26). Several farmers in the study region were reported to have been denied loans either due to insufficient collateral for the bank especially for financing the even more expensive winter greenhouses (A5): *“local government cannot offer loans high enough to support these bigger investments”* (G8). In those cases, where loans were granted, a farmer reported that it was *“a good investment and payed off very well”* (L23).

As a Crop Science Teacher at the Polytechnic College in Ulaangom explains, the limited financial possibilities of small-scale farmers force them to purchase cheaper greenhouses of lower quality:

*“The government needs to support farmers who want to get a greenhouse. Because of the high investment cost, at the moment, they just get the cheapest ones from China or Korea, which break down easily. More stable ones are more expensive.”* (A5)

The high cost of good-quality greenhouses thus means farmers often opt for a cheaper alternative with a shorter lifespan. Indeed, the issue of stability was prevalent in the study region as several farmers stated that their greenhouse had been destroyed by strong winds, rains or floods (L16, 17, 21, 23, 25). The annual renewal of plastic foils is thus necessary and adds another cost factor to the production (L23). Especially with regard to future increasing extreme weather events (see Chapter 5.3.1 on climate change), quality and stability of greenhouses thus seem to be of utmost importance if such an investment is to be made.

Knowledge about greenhouses and their proper operation present another bottleneck factor among farmers who either want to attain a greenhouse or already have one. Several farmers in the study region stated that they refrained from buying a greenhouse because they lack knowledge about its technology and how to cultivate crops in it. Apparently, the agricultural extension service only informs farmers about the prices of greenhouses and about their operation, but

many stated that they would like to learn more about it (L2, L7, L31). Indeed, knowledge about greenhouses appears to be essential in order to make the high investment worthwhile, as a Crop Science teacher from Ulaangom stated:

*"The investment only pays off when the farmer has knowledge on how to extend the growing season through it. If he or she doesn't change to at least a two-harvest system, then the profit is not big enough to make up for the investment cost of the greenhouses. A greenhouse always has to come with teaching about how to correctly use it in order to properly profit from it."* (A5)

Indeed, this was found to be a prevalent issue in the study region, as one small-scale farmer reported that she knows several farmers who purchased a greenhouse *"without proper knowledge about its operation and whether it pays off, and many of them failed"*, which is why she herself did not get one (L7). This is in line with a statement from a former miner now getting engaged in sea buckthorn and vegetable planting:

*"It's our first year, we are not so experienced yet, but we think we'll get some profit from the greenhouses. We bought seeds and thought they were for greenhouses, but they were for outside planting – we don't have so much experience."* (L31)

While farmers in the study region to date only possess *summer greenhouses* (greenhouses with steel carcasses and plastic foil covers), the wish for *winter greenhouses* (heated greenhouses which can be operated all-year around) was often expressed by farmers, government and academia, as winter greenhouses were attributed with some further advantages, e.g. the extension of the growing season to up to four harvests (A5). Especially in Uvs Aimag, which is considered the coldest Aimag in Mongolia, the local government has high expectations for winter greenhouses to compensate for the cold temperatures impeding horticultural production during most months of the year (G24). Extending horticultural production into colder months could also be a way to create employment during the off-season in this sector (O21). Furthermore, modern technologies such as winter greenhouses might also foster the interest and involvement of young people in this sector (UNDP, 2016).

As stated above, winter greenhouses pose a financial burden due to their high initial cost. The cost of a greenhouse is thereby dependent on the level of technical sophistication – winter greenhouses are especially expensive due to their material and high heating costs (G2, O16). Furthermore, when coal or electricity is used for heating, this can have a negative impact on the environment due to CO<sub>2</sub> and other emissions. As there are many different types of (winter) greenhouses and heating systems, a low-cost and low-environmental impact model should be

chosen and promoted. While this study does not provide any technical assessment, three examples of different greenhouse types are briefly presented to inform an idea about how winter greenhouses in the study area could look.

A low-cost alternative to more sophisticated winter greenhouses and unstable summer greenhouses was found in the form of a so-labelled “brick greenhouse” which the head of the Seed Producers Association near Ulaangom described as “*something in between a normal and winter greenhouse*” (O16). While this type of greenhouse still uses plastic foil or glass as covers for its southern side, its other sides were made of locally produced bricks, rendering it “*more stable in case of storms and long-living*”. Thus, next to the advantage that “*people can build it on their own initiative and don’t have to import from China*”, it only had a cost of 5-10 million MNT in comparison to around 80 million MNT for a winter greenhouse which said farmer and head of the Association was planning to buy from China but could not get a loan for. This renders it only slightly more expensive than regular summer greenhouses, which have a cost of around 3-9 million MNT (L8, O16). While one could not operate a brick greenhouse during particularly cold winters, one farmer claimed that it was well-insulated enough that they could heat it up to +15 °C at an outside temperature of -15 °C by using electric heating or lighting a small fire with coal, which would be sufficient for spring and autumn temperatures and thus even allow for 3-4 harvests a year for his vegetable and seed production. Even though the brick greenhouse from Ulaangom presents a low-cost alternative, it still uses fossil energy to provide the heat in winter.

A more sophisticated but in turn more environmentally friendly alternative can be found in the *Gobi-Desert Greenhouse* system which is already operated in “Inner Mongolia”, China (Xie et al., 2018). While the Gobi-Desert greenhouse is also mainly made of locally available materials – such as that the sides are made of bricks as well – it relies exclusively on solar energy, using a variety of passive and active solar technologies such as polycarbonate sheets, solar-thermal and photovoltaic collectors as well as heat exchangers which try to make maximum use of the sun’s energy, store it during the day and redistribute it throughout the greenhouse at night. This allows for a year-round operation able to function in outside temperatures of -28 °C. This would not only reduce CO<sub>2</sub> emissions, but also the use of underground drip irrigation. The covering of the soil with plastic sheets further significantly reduces the water consumption against outside cultivation.

Finally, a compromise version of the afore-mentioned two greenhouse models appears to be present in *GERES’s passive solar greenhouses* which are operated around Ulaanbaatar, Arkhangai and Khentii Aimag (GERES, 2018). While these



greenhouses are also partly made of bricks, they use both passive solar energy and off-heat from the nearby *ger's* oven to cultivate the plants in winter. Thus, a growing season of eleven months and a return on investment in one to four years is possible. GERES meanwhile seems to follow a holistic approach, providing project beneficiaries with bioclimatic cellars for vegetable storage, composting facilities, shelter for livestock and beehives. This physical infrastructure is complemented with capacity building on post-harvest measures and processing, marketing and awareness raising such as vegetable cooking classes in schools and hospitals in local communities.

Greenhouses thus present a beneficial technology which could help improve crop yields, water use efficiency (Jordan et al., 2018), and promise employment and income security for a prolonged part of the year. Regarding the heating system of greenhouses, passive and active renewable energy solutions should, where possible, be used instead of fossil fuels. With regards to the expected changes in precipitation and temperature, greenhouses also present a tool that allows for adaptation in uncertain climatic conditions:

*"If you really want to develop this sector you have to look into greenhouses because the growing season is getting shorter as a result of climate change. I for my part have decided to go in this direction in the future."* (O16)

Further feasibility studies are needed and pilot projects should be implemented to explore if and how this promising and locally requested technology can be further spread and rentability can be assured.

### **6.2.3 Horticultural value chain**

#### **Input availability**

There is a small and highly regulated market for agro-chemical farming inputs in Mongolia. Most of the fertilisers as well as pesticides are provided by the neighbouring countries China or Russia and partly from the European Union (Pöschk, 2016). While the admission of inputs is strictly controlled by official entities (MoET and the Ministry of Health), the private sector plays a key role in importing the corresponding pesticides and fertilisers from abroad (Chuluunbaatar et al., 2017).

Vegetable producers in Mongolia mostly rely on locally available organic fertiliser and use animal manure to improve soil fertility (Gantulga & Undarmaa, 2016; Yesun-Erdene, 2018). Most farmers collect animal manure from roaming livestock to apply it on their fields (L26). However, the availability of manure is limited as it is also used as a combustible for cooking and heating by the local population. As

confirmed by a professor for soil science at MULS, the competition over this organic resource thus limits its availability for fertilisation (A10). Furthermore, the farmers of Chandmani Soum, Khovd Aimag, mentioned that expenditure related to the transport of animal manure to their fields is the biggest production cost they face in horticultural production (L17, L18). Thus, vegetable farmers in the study site often apply insufficient fertiliser due to a lack of availability and high cost.

A study conducted by Gantulga and Undarmaa (2016) in Central Mongolia shows that 47.6 % of wheat, potato and vegetable producers rate the availability of pesticides in Mongolia as insufficient. Vegetable farmers usually forgo preventive measures but apply insecticides or fungicides with hand sprayers when the pest and disease pressure is very high (Gantulga & Undarmaa, 2016). Since small-scale producers usually buy Chinese manufactured pesticides from unauthorised retail markets, they are not instructed on how to use them safely which can pose a risk to human health and the environment (Pöschk, 2016). Pesticide use is not monitored and no data was available at the Aimags' Departments for Food and Agriculture. Buyant Soum, Khovd Aimag, is known for its high production intensity of vegetables and watermelons. According to the Department for Food and Agriculture in Khovd, the farmers of Buyant started to use more pesticides due to enhanced pest and weed pressure during previous years (G19). As the use of pesticides is increasing, the head of the Water Users' Federation in Khovd raised concerns about the impacts on the environment:

*"The pesticides are polluting the water. The farmers don't use pesticides properly because they don't have enough knowledge about their use." (O22)*

According to the head of the Department of Chemistry and Biology of Khovd University, the uncontrolled pesticide use in Buyant Soum may be causing the high prevalence of cancer in Khovd Aimag (A3). While this causality is not scientifically proven (yet), it gives rise to rumours which threaten the reputation of the Western Aimags as being sustainable producers of fruits and vegetables (A10). Also in Uvs Aimag, farmers raised concerns about health issues related to pesticide use during a focus group discussion (O17). Apparently, farmers are still using old pesticides which are *"more toxic"* than newer ones and *"very bad for health"* (O17). According to a local farmer and agronomist, all berry and vegetable producers in Taraialan Soum use pesticides at some point during the year and the application of insecticides by small-scale farmers is steadily increasing (L21). In his case, they buy the agro-chemicals from official providers in Ulaanbaatar. Since herbicides, fungicides and pesticides are freely available, farmers need to be bet-

ter informed about their correct use in order to prevent damage to health- and the environment.

Concerning the input of planting material and seeds, 52 seed producers in Uvs Aimag currently produce 100 % of the national demand for root vegetable seeds such as beetroot, carrot and turnip (I5). As the IPAS confirmed, the market is fully satisfied with root vegetable seeds. On the other hand, there is still a high demand for seeds of other vegetables and planting materials, for onions or garlic in particular (A7). Thus, producers from both Khovd and Uvs Aimag regularly import seeds from other countries as they cannot be obtained from local suppliers in the Aimag centres (G19, L1, L21, A5). Accordingly, a teacher in crop science at the polytechnic college in Ulaangom admits that *“there is still a lot of room for improvement in the local seed sector”* (A5). Even though Uvs Aimag is well known for its seed production, the farmers merely reproduce a few varieties and not enough effort is made to diversify, improve or even breed new seeds for the Mongolian input market. Seed saving is also practiced by various farmers in Uvs Aimag (L21, L32). Instead of buying new vegetable seeds year after year, the producers harvest seeds from their vegetables in order to plant them in the following season. A farmer from Tarialan Soum who holds a degree in Agronomy from the University in Dharkan mentions that they import vegetable seeds from Germany, reproduces them and sells them to other producers that are interested in diversifying their production (L21). Such innovation brokers could potentially play an important role to improve the supply and availability of quality vegetable seeds in the future.

### Storage

The IPAS in Ulaangom points out that local farmers produce an excess of vegetables during the harvest period but are unable to cater to the needs for vegetables in the other seasons (A7). Thus, the storing of vegetables becomes a top priority in order to satisfy the demand of fresh produce during the winter months (JICA, 2017a). The farmers in the study site also recognised the relevance of storing their produce and used different technologies to do so. Some farmers simply dig a hole in the ground and cover their vegetables with soil while others own or rent a cellar for storage (L2, L28). As a farmer and market seller from Ulaangom explains (L32), the monthly rate for renting a storage facility with a capacity of one tonne of vegetables costs 80.000 MNT (USD 29.9). However, oftentimes the quality of earth cellars in Uvs Aimag is insufficient and might even propose a risk to the people due to unsafe construction (Mayer, 2018). At the local market in Ulaangom, a kilo of root vegetables is sold for 550 MNT (USD 0.2) in harvest season and for 1 500 MNT (USD 0.6) in spring time (L28). This threefold in price development

also creates an incentive for intermediates to buy seasonal surplus produce and resell it later:

*"We have a cellar where we can store vegetables. We buy vegetables now during the harvest season as the price is low and store it in their cellar in order to sell it again in winter and spring for better prices." (L23)*

Thus, making affordable storage facilities accessible for small-scale producers is an important measure for increasing farmers' income and financial returns. The provision of decentralised public storing facilities in the main vegetable producing areas that hold between 100 and 600 tons of produce is also recommended by Mayer (2018). According to the Department of Food and Agriculture in Uvs Aimag, the local government is currently implementing a programme on vegetable storage. They are planning to build 500 to 1000 storage facilities that can be rented by farmer groups for a relatively low price (G24).

Adequate storage facilities also play an important role in the berry value chain. According to the Uvs Food Company (P5), freshly harvested sea buckthorn needs to be processed within twelve hours after fruit picking in order to prevent fermentation. Since many berry farms are located in remote areas where prompt transportation becomes a challenge, a lot of sea buckthorn producers own their own freezers where berries are stored at  $-15^{\circ}\text{C}$  and thus conserved for a longer time (L5).

### Processing

Another way to preserve berries and fruit that also adds value to the product is processing. Some small-scale farmers pickle small portions of graded vegetables and sell the sour salads in preserving jars at the local market (A5, L31). A farmer from Chandmani Soum, Khovd Aimag mentions that the manufacturing is mainly carried out by his wife:

*"My wife occasionally makes some salad from the carrot, turnip and cabbage and sells it. The salad is hand-made, we do not have any processing equipment. My wife mainly sells the salad in the Soum centre during winter." (L17)*

Since preparing vegetables is associated with the care work of preparing meals, it is likely that such processing is mainly perceived as a job more suitable for women. More attention should thus be paid to freeing women from solely carrying the burden of unrecognised and uncompensated reproductive labour. As vegetable processing is rarely mechanised in the study site, the production capacity remains rather low. The introduction of technologies for preservation, drying and processing are thus of big interest for the rural population in order to increase

the supply of vegetables in winter time and reduce post-harvest losses (JICA, 2017b). As a farmer of Buyant Soum, Khovd Aimag, points out during a focus group discussion:

*"We need to have processing plants for vegetables. If we manage that, we could create new jobs. All kind of vegetables can be processed."* (L2)

Due to the lack of such a centralised processing plant, some members of the local population undertake their own efforts to advance processing and create value addition for their products.

Next to value-addition, the processing of vegetables furthermore comes with the advantage that it creates horticultural income opportunities during the off-season in winter. According to the head of the Mongolian Women Farmers Association (MWFA), focusing on activities like drying and processing can offer extra income for vegetable producing women outside of the growing period (O2o).

For berry production, on-farm processing is quite common. Many black current and sea buckthorn farmers produce juice and oil at home with small devices (L5, L21, L32). However, the juicers and oil presses are not suitable for processing large quantities of berries as they are designed for only household-level use. While the autonomous processing of sea buckthorn allows each farmer to add value to his or her products, the resulting product heterogeneity impedes efforts for joint selling. The head of the NFBA in Uvs Aimag characterises the problem as:

*"Each of the 31 sea buckthorn producers has his or her own bottles and own labels. This is a problem. We once received an order over five tons of sea buckthorn oil from the United States of America. But when we collected the oil, there were 31 different types and we could not combine them. We do not have a quality standard; all the products are very different. Therefore, we want to centralise the processing."* (O9)

A local processing facility that can process large quantities of sea buckthorn could also be a way to increase the buying-price for berries and reduce transportation and storage costs for farmers (Gonchigsumlaa, 2016). Vegetable processing may also be carried out by small-scale processing enterprises like Амт нэмэх үү which translates to "Do you want more flavour?" (P2). The enterprise is specialised in organic vegetable production and sells their products in attractive packaging in various shops (see Textbox 2).

**Textbox 2: The vegetable processing enterprise “Do you want more flavour?” (АМТ НЭМЭХ ҮҮ).**

- Small processing enterprise specialised in the drying of vegetables
- Graduate student of design (female, 38) manages the business part-time
- Family runs 1 ha vegetable production in Bulgan Soum
- Vegetables are dried, processed, packaged and sold in different shops in Ulaanbaatar and shops across Khovd Aimag
- Products are sold in appealingly designed and labelled paper bags
- Products include dried herbs, vegetable stock and soup mixes from onions, carrots, turnips, beetroot and kale
- Vision: expanding production based on customer demands and facilitating the consumption of healthy, organic products

## Marketing

Due to a general lack of affordable storage or processing facilities, many farmers are forced to immediately sell their vegetables after harvest. As the teacher of crop science at the polytechnic college in Ulaangom elaborated, the seasonal oversupply excerpts a downward pressure on local prices in September and October (A5). Various fruit and berry producers surveyed in this study thus described the marketing of their products as a challenge (L1, L2, L21, O22). To achieve higher prices and benefit from product differentiation, some farmers advertise their berries and vegetables as organic (L32). The Mongolian Law on Organic Food was introduced in 2016 in order to provide regulation on the production and trade of organic food (Mongolian National Government, 2016). It also states that organic certification shall be facilitated by an authorised accreditation body of Mongolia. After certification, producers can use the official organic logo or trade mark for marketing purposes.

Western Mongolia’s vast land resources, marginal use of agro-chemicals over the last 20 years and relatively low disease pressure may be factors that predestine Khovd and Uvs Aimag for organic horticulture. However, one must consider the small domestic market for organic crop production due to the low number and limited financial possibilities of consumers (Yesun-Erdene, 2018). Even though organic production in the study site is possible and already practiced in many cases, official certification remains to be a problem. As a professor for soil science at

the MULS remarks, there is currently no laboratory in Mongolia that could reliably test for residues of pesticides whose use is forbidden under the Law of Mongolian Organic Food (A10). This makes effective monitoring for organic production almost impossible. The issue of certification and labelling of organic products thus requires further development before it can act as a marketing advantage for local producers.

For sea buckthorn, Geographical Indication (GI) presents another approach that allows for product differentiation. GI is a strategy for value addition of products with a special linkage to a geographical zone, its inhabitants and their traditions (Lecoent et al., 2010). Uvs's sea buckthorn gained GI certification in 2007 with support from the National Chamber of Commerce and Industry. Since then, the Uvs Food company stresses the uniqueness of their sea buckthorn products and markets them accordingly by using a geographic indication label as a selling strategy (P5). The head of NFBA, on the other hand, strongly disagrees with the concept of GI labelling:

*"I do not think it is good that the GI is only used by one big factory. I am against it. I am a fan of the Mongol sea buckthorn production, not the one produced in only one area. I am against this GI indication, there is not a study that shows Uvs production is better. It is unfair for the other producers in other areas. So if there is a quality indication, it should be good for whole Mongolia."* (O19)

Drawing from this observation, it is apparent there is a need to rethink marketing strategies that deliberately present a disadvantage for other producers. Regarding the social sustainability aspects of horticulture, marketing should be facilitated in an inclusive way that tries to remove entry barriers for disadvantaged farmers.

#### 6.2.4 Institutional support

##### Extension services

Extension service is an umbrella term which encompasses the transfer of agricultural knowledge and skills as well as the provision of technical advice and information to the farmer. After the end of socialism in 1990, the centrally planned top-down transfer of agrotechnology suddenly stopped and the state withdrew from providing technical support in rural areas. Nowadays, there are several private and academic actors apart from the national state involved in the provision of agricultural extension services: (1) research institutions and agricultural universities, (2) public extension services, (3) international projects (4), the private sector, (5) non-governmental organisations and (6) farmers associations and producer

groups (Chuluunbaatar et al., 2017). An overview on horticultural extension providers relevant to this study can be found in Annex 5.

The *polytechnic college* in Ulaangom offers a *Vegetable Farmer Course* (10 month) and *Agrotechnic Course* (18 month) which equips participants with knowledge on how to prepare soil, handle vegetable and make horticultural business plans. Both courses include both classroom theory (20 %) as well as hands-on practice in the college's field schools (80 %). Participation is free as the Ministry of Labour and Social Welfare pays a full-stipend to all enrolled students which covers all costs. In 2019, a total of eleven students were enrolled in the *Vegetable Farmer Course* of which two were male and nine female. The participants represent different age groups – young under-graduate students and adults in their 40s visit the classes. The polytechnic college in Ulaangom thus offers training suitable for people that just starting with farming as well as producers with a few years of experience who want to increase their practical knowledge (A5).

As the *research institute IPAS* in Ulaangom pointed out, there is a lack of exchange between their institute and the local farmers as relevant innovations never find their way into practise (A7). According to the director of IPAS, the National Agricultural Extension Centre (NAEC) is responsible for reaching out to farmers and disseminating academic findings as the institute itself does not have the capacity to do so. The NAEC is the main *public extension service* and was established under the MoFA in 1996. Since the IPAS is organised under the Ministry for Education due to their research activities, there is a general lack of coordination between entities and poor linkage of actors. Furthermore, the NAEC is unable to adequately fulfil its task due to the absence of institutional support and an effective governance as well as management system (Chuluunbaatar et al., 2017). Thus, there is a mismatch between public sector research, the extension system and the producers. This gap was also observed in Buyant Soum, Khovd Aimag, where local vegetable producers complained about the insufficient quality of public extension services during a focus group discussion (L2).

The current degree of producer involvement in horticultural research and planning of public extension activities is low as they are rarely consulted before implementation (Chuluunbaatar et al., 2017). This may explain the discontent of small-scale farmers whose information needs are barely considered. A demand-driven service system that acknowledges farmers' needs and ensures their participation in priority setting is needed to increase the relevance of the public extension service (ibid.). Furthermore, including farmers in decision-making processes



through participation is one of the requirements for social inclusiveness in horticulture.

From all the agricultural extension activities in Mongolia, around 45 % are facilitated by *international projects* (ibid.). Both the *Inclusive and Sustainable Vegetable Production and Marketing Project* from SDC as well as the *Community Vegetable Farming for Livelihood Improvement Project* implemented by the Japan International Cooperation Agency (JICA) target small-scale vegetable as well as seed producers in Uvs Aimag and work directly with farmers, providing various extension services to rural households. However, the short time frame of international projects of only two to five years on average can be a limitation to their success and long-term sustainability.

*Private sector* initiatives that offer extension services to farmers are mainly based on the perception that public research systems are insufficient in catering to the needs of product quality and quantity in a quickly developing market (Chuluunbaatar et al., 2017). Accordingly, the Uvs Food Company hires experts to provide training on sea buckthorn pruning techniques to achieve higher yields for their suppliers (P5). Ever Green Land LLC offers training on greenhouse farming for small-scale producers in addition to the sale of agricultural inputs and equipment (L8).

Some *non-governmental organisations* like the Mongolian Women Farmer association (MWFA) target a specific group of members to which the agricultural extension is provided. The MWFA reaches out to unemployed women in (semi-) urban areas and equips them with the necessary support to start vegetable farming. Some participants managed to expand their production and sell vegetables for household income creation (O20). The NGO also facilitates the access to horticultural inputs such as seeds and seedlings upon request and against remuneration (Chuluunbaatar et al., 2017).

Throughout the study site, *farmers associations* play an important role in providing training and information to their associates. Many of them offer various training sessions per year free of charge for members. As farmers either constitute the whole organisation themselves or are represented in the association's member board, they directly participate in decision making processes and decide over the content of training sessions. The services which associations provide to their members range from technical support and information dissemination to input provision as well as own research. The Uvs branch of the National Fruit and Berry Association, for example, published textbooks on sea buckthorn cultivation and employs agricultural scientists that research effective post-harvest technologies

(O9). The diverse portfolio of farmers associations thus plays an important role in inspiring new ideas and innovation among small-scale farmers (cf. Textbox 3).

**Textbox 3: Association of seed producers in Ulaangom, Uvs Aimag (O16).**

- Branch of the Mongolian Farmers Association for Rural Development
- 38 producers (90 % of all seed producers in the Aimag) are members
- Association buys the seeds of its members to resell them in bulk
- *Knowledge dissemination*: training on seed production and procurement is organised twice a year
- *Input provision*: association supplies fertilisers with a 50 % discount rate
- *Consultancy*: agricultural scientists from the Dharkan agricultural university visit the members' fields during summer time
- *Financial support*: members receive 20 % advance payment before planting, 40 % payment during harvest and the remaining 40 % upon delivery
- *Quality control*: association facilitates tests for seed quality and germination rate

### **Governmental support**

As pointed out in Chapter 5.1.3, the local population often lack access to finance. For sea buckthorn farming, the lack of sufficient finance is the biggest challenge among small scale-producers (Gonchigsumlaa, 2016). Since the high interest rates of local banks present a burden for many small-scale producers (L17, O12, A5), government funding has a high relevance for the producers in Khovd and Uvs Aimag. Thus, the so called *Soum Development Fund* (SDF) plays an important role in extending the financial possibilities of fruit and vegetable producers in the study site. As the head of department for Food and Agriculture in Khovd Aimag explains, farmers can obtain funds from the SDF by simply submitting an application (G19). Small-scale producers from Naranbulag (L25) and Tarialan Soum (L23), Khovd Aimag, indicated they had used the SDF to buy sea buckthorn seedlings and build three greenhouses, respectively.

However, the SDF is not available for civil servants that work for the local government due to integrity purposes. Even though such a measure might prevent nepotism or preferential treatment in public institutions, it makes horticultural

production more difficult for people working as teachers or accountants at the local government since it deliberately excludes them from funding opportunities (L16). Furthermore, as the head of the MWFA point out, those loans are often-times inaccessible for female farmers due to a lack of collateral as family assets in Mongolia are registered under the husband's name (O20). Even though the SDF is a governance tool that provides financial support to many horticultural producers in the study site, the need for an inclusive funding mechanism accessible for all small-scale farmers is evident.

The local government is furthermore responsible for granting land use permits to horticultural producers. According to the farmers who took part in the survey, the application and acquisition of arable land is not a problem in the study site (L9, L25, L28). As the head of Department of Food and Agriculture in Khovd Aimag explains, farmers that want to start a horticultural production need to submit a request beforehand. During the Citizen Representatives Meeting which takes place twice a year, the available plots are assigned to farmers. In Khovd Aimag, the department receives approximately 100 land requests per year of which the vast majority are approved. Farmers need to pay an annual land tax which usually lies between 16.000 to 20.000 MNT (USD 6.0 to 7.5) per hectare. The land taxes are also understood as a government tool to foster horticultural development in remote areas and create incentives for the local population: in Chandmani and Munkhkhairkhan Soum, no land taxes are raised in order to motivate people to start farming (G19). Likewise, the Department of Food and Agriculture in Uvs Aimag confirms the abundance of arable land and notes that the annual number of people applying for crop land steadily increases (G24). Nevertheless, it remains questionable as to whether despite the sufficient *quantity* of arable land there is also a satisfying *quality* of available land. As a young agricultural student from the polytechnic college in Ulaangom pointed out, arable land within the proximity to urban centres, water access and good soil are difficult to obtain (L30).

### 6.2.5 Disposition of farmers

#### Labour availability

As addressed in Chapter 6.2.2, horticultural activities are concentrated in the growing season from May to September. During summer, labour is abundantly available in as young people on holidays are free to help with planting or weeding (o6). In autumn, on the other hand, it can be difficult to employ seasonal labour since school starts and herders are busy making hay (L27). The harvest is the period where most labour is needed. Sea buckthorn harvest was noted to be particu-

larly labour intensive. In many cases, the seasonal unavailability of labour limits the expansion of horticultural production (L5). As a teacher of Crop Science at the Polytechnic College in Ulaangom pointed out, labour shortages can also have negative impacts on farming practises and production sustainability. Most of the farmers know about the relevance of manure application but are unable to apply sufficient amounts due to a lack of time and labour. This results in decreasing soil fertility (A5). A common strategy to compensate for seasonal staff is to increase family labour. Many farmers indicated that their children and relatives regularly work on their plots (L15).

However, this strategy is impossible for small or single-headed households in the study site (O20). Instead, those farming households rely on wider social safety nets, asking distant relatives for help. A single female crop farmer, for example, asked members of her brother's family to help her dig a well and set up the fencing for her farm (L8). According to government representatives in Khovd Aimag (G19, G37), the lack of workforce could also be overcome by farmers working together in agricultural cooperatives. The possibilities of mutual help through cooperative organisation are further discussed in Chapter 6.3.

### Knowledge

Among the surveyed farmers, only two received formal education in horticultural production. Both are Soum citizens of Tarialan, Uvs Aimag, where they started greenhouse vegetable production after obtaining their degrees from the University of Agriculture in Darkhan (L21) and the Polytechnic college in Ulaangom (L23). The farmers act as innovation agents sharing their technical knowledge and practical experience with other people upon request. Since the public extension services in the study site is rather weak (see Chapter 6.2.4), their dedication to spread information on good farming practices among the rural population are regarded as beneficial to resilience.

While only a small minority of the surveyed farmers received formal horticultural education, most of them acquired their skills through *learning by doing* (L9, L26). Or, as the Vice Gouvernor of Chandmani Soum notes, "*people who are engaged in crop production taught it [to] themselves, no one really received any training here*" (G16). The rest of the farmers claimed to have gained their knowledge from either their parents (L18, L24, L28, L29) or other relatives who had already been involved in this field (L13, L25). Books are also oftentimes cited as a source of information. Sea buckthorn farmers in particular pointed out that they consulted literature for further information on planting and processing the berries (L9, L16). According to the teacher for crop science at the polytechnic college in Ulaangom,

knowledge deficits on good agricultural practices such as fertilisation are prevailing among the local farmers and should be addressed in order to prevent environmental degradation (A5).

### **Motivation and vision**

The local population in Khovd and Uvs Aimag reported various motives for starting or expanding horticultural production. Among the farmers in the study site, some producers showed *eagerness to experiment* which motivated them to expand their horticultural cultivation. All surveyed berry producers stated their interest in producing new crops such as huscap berry if planting material were available. A farmer couple from Chandmani Soum mentioned that they are experimenting with three new types of berries (strawberry, huckleberry, and red currant) simply to prove the point that those fruits can be cultivated in this area (L16). Accordingly, a female farmer from Munkhairkhan Soum was inspired by a TV show about fruit production and explained that she too would like to try planting black current, apple trees, and strawberries (L9). Farmers also frequently reported to gain a high satisfaction from their work which motivated them to carry on with their activities (L23, L29). A representative of the Citizens' Chamber in Tarialan Soum perceives this motivation among farmers as a necessary condition to further develop the horticultural sector:

*"The development of the Soum, including the expansion of its crop production sector, depends on each individual's attitude. There are no limits to what people can do if they choose to do it. It is mainly about the mind-set of people wanting to do things."* (G31)

In Naranbulag, the Soum governor described the local people as hard working and proudly pointed out that crop production in the area has a tradition since the 18th century (G32). In his vision, every household would start gaining income from horticulture to carry on the tradition. Accordingly, the Soum governor emphasised his commitment to develop the horticultural sector in Naranbulag and ensured cooperation for any entities willing to contribute to this aim. Accordingly, pride and tradition represent two further sources for motivation that drive local people's engagement in horticultural production.

Among the Soum citizens not yet involved in farming activities who participated in the survey, some put high hopes on the possible profits they could make with horticultural production (L11). Aside from income, a female Soum citizen from Chandmani Soum mentioned that she would like to start vegetable farming on order to provide nutritious products to her family (L20). Generally, the high

interest and willingness of the local population and farmers to engage in horticultural production should be rated positively for further development projects that aim to promote the participation of Soum citizens. Good agricultural practices can be promoted with campaigns (brochures), the organisation of workshops or invitation to demonstration fields. Special attention should be paid to (1) pruning in berry production, (2) soil management practices such as legume intercropping or composting for vegetable production, (3) irrigation management for a sustainable water use, (4) fertilisation with locally available input, (5) natural solutions for effective pest management, and (6) planting techniques in greenhouses.

As the head of the Mongolian Women Farmers Association (MWFA) explained, different strategies should be applied to create interest in farming activities for all age groups (O29). Young people are best reached through social media like Facebook. Thus, project staff should be well equipped with experience in Social Media and knowledge dissemination techniques:

*"In order to teach young families about healthy nutrition, we need to also teach our trainers about modern technologies to reach them better. People who work with computers do not know about farming and the other way around – experts are needed who can do both."* (O29)

When asked what they would wish for their horticultural production in the future, farmers revealed individual visions which were mainly connected to the acquisition of agro-technical equipment such as greenhouses, processing or storage technologies or irrigation systems. Some of the elderly farmers surveyed in this study pointed out that they would wish their children to carry on the production they started (L5, L15). However, it remains questionable as to whether the young generation is willing to carry on in the future, given the demanding physical labour. As a vegetable farmer from Chandmani Soum, Khovd Aimag, puts it into words:

*"My children should not become farmers because this work is very hard. Instead, they should get more education and do whatever they want."* (L17)

As pointed out in Chapter 6.2.2, mechanisation and technical advancement in the horticultural sector are needed to make the production more attractive, especially to the younger generation. During a youth workshop at the polytechnic college in Ulaangom, young participants of the *Vegetable Farmers Course* were asked to elaborate on their vision for a future farming operation. Their vision included 0.3 ha (1.000 trees) of black currents as well as three greenhouses to plant tomatoes, cucumbers and other fine vegetables. Furthermore, their ideal farm comprised of a storage facility with heating system to ensure adequate temperatures

during winter time. Instead of constructing a fence, the participants included trees as natural fence poles in their illustration (L30). The envisioned farming enterprise is located close to the Soum centre in order to fulfil social needs and also included livestock keeping.

### 6.3 The role of agricultural cooperatives

Parkhe (1993) defines agricultural cooperatives as arrangements in which the members pool certain resources for the joint accomplishment of individual goals. Cooperatives are owned and managed by their members using the democratic principle of “one man one vote” (Barrau-Didier et al., 2012). By acting collectively, farmers profit from an increased negotiating power on the market. As cooperative organisation can lead to lower transaction costs and improved quality or quantity of products, other actors along the supply chain may benefit from such an arrangement as well. The increased information flow and improved efficiency in the distribution of subsidies are incentives for governments to support agricultural cooperatives. They are also thought to stimulate the local economy and rural development (Zhu et al., 2018).

In Mongolia, the first law on cooperatives was established in 1995 and has been amended at various times since then (Iyer, 2018; Myagmarzul, 2016). As the head of the National Association of Mongolian Agricultural Cooperatives (NAMAC) mentions, the law is currently under revision and changes are expected regarding tax policy, the role of local governments and required members’ participation (O18). Through the National Program for Cooperative Development (NPCD), the government promotes cooperative activities in Mongolia. During the programs’ first phase between 1998 and 2008, attention was paid to the promotion and capacity building of cooperatives. During the second phase from 2009 to 2017, emphasis was given to the development of an enabling environment by fostering investments and supporting actors along the supply chain (Iyer, 2015). The national government also provides various low interest loans as well as subsidies for cooperatives (Chuluunbaatar et al., 2017). In many cases, government subsidies on raw materials such as wool are the main incentives for agricultural producers to join (Myagmarzul, 2016).

Those subsidies represent a financial advantage for cooperative members and helped make membership in an agricultural cooperative more attractive. The efforts of the NPCD, which were also supported by (inter-)national development agencies, thus resulted in a significant increase in the cooperative movement in

Mongolia (Chuluunbaatar et al., 2017). However, it is important to note that the mentioned subsidies only apply to raw materials of the livestock sector and currently do not exist for horticultural products.

In 2018, there were 1,378 registered cooperatives in the sector of agriculture, hunting and forestry with a total of 33,675 members (NSO, 2018). The minimum of required members needed to form an agricultural cooperative is nine (Iyer, 2015; Rasmussen & Annor-Frempong, 2015). The NAMAC plays a key role in organising producers, facilitating access to markets and inputs as well as doing advocacy work on a regional as well as national level since 1992. Being active in 365 Soums and providing services to 38,000 household makes NAMAC one of the biggest agricultural NGOs in Mongolia (Chuluunbaatar et al., 2017). According to their mission, the NAMAC understands itself as a “national body to support the cooperation and mutual trust among the rural producers and to promote the favourable environment for cooperative development” (COOP, 2016). NAMAC’s efforts significantly contributed to the increase in agricultural production efficiency as well as improved living standards for the rural population (Chuluunbaatar et al., 2017). Furthermore, NAMAC established a training centre for cooperative development and thus acts as a supplier of agricultural extension services (see Chapter 6.2.4) to rural populations and promoting educational and cultural welfare. On the Soum level, local NAMAC branches offer training to cooperative members on organisational transparency and the concept of ownership (O18).

Horticultural cooperatives are important stakeholders and innovation agents in the study site. Currently, there are ten registered agricultural cooperatives in Uvs Aimag of which six are related to fruit and berry production (O12). During a focus group with five of them (O17), the present representatives noted that their cooperatives are active in organising research and the provision of information, facilitating storing, processing as well as trade and marketing for their members. Cooperatives are one of the main players in the berry and vegetable value chain in the Aimag (Tsevelmaa and Enkhmaa, 2018). According to the head of NAMAC, Khovd Aimag does not have as long a tradition in the organisation of cooperative arrangements as Uvs Aimag. Still, with the high number of small-scale producers in Western Mongolia, shows “*a very good potential for the development of horticultural cooperatives*” (O18). This perception is also shared by the Department of Food and Agriculture in Khovd Aimag as cooperatives are seen as more beneficial in comparison to each farmer working individually:



*"Farmers have to cooperate in order to make the work easier: to save expenses and to receive services together. We think that a lot of people are interested in being part of a cooperative." (G19)*

Regarding the members of agricultural cooperatives, this organisational arrangement is especially of interest for small-scale farmers with limited financial possibilities (O12). As financial shortages make it difficult for individual producers to acquire means of production and organise marketing, cooperative membership can help to provide those services and thus caters to the needs of the marginalised. As stated by the Mongolian cooperative law, both husband and wife will become members if one of them joins a cooperative. According to the head of NAMAC, there are slightly more women in cooperatives than men (O19). The association promotes gender mainstreaming and previously offered training for building management capacity of women in cooperative development (Iyer, 2015). Despite there being no official statistics on the average age of cooperative members, the head of NAMAC explained that cooperatives mostly constituted of the elderly population:

*"Most of the members are seniors. In general, there are rather few young members but mainly people who were already in cooperatives during the socialist time. Those people are already familiar with cooperative organisation. The young members are mainly children of someone who used to be in a cooperative before." (O19)*

A study carried out in 2013 on behalf of the NAMAC concluded that young people perceive cooperatives as a thing of the past which mostly caters to the needs of the financially disadvantaged rural population (Iyer, 2015). Thus, NAMAC is currently making efforts to increase awareness and provide information on cooperatives to the younger population.

### **6.3.1 Advantages and challenges of cooperative organisation**

Within the scope of this study, various stakeholders concerned with cooperative organisation in the study site were consulted, namely: an agricultural consultant with expertise on Mongolia (I2), the head of the Uvs' branch of NAMAC (O12), government representatives from the department of food and agriculture of both Aimags (G19, G24), the manager of a mixed-cooperative for livestock crop production in Tarialan Soum (O15), horticultural producers of the local population (L1-L31), the representatives of five horticultural cooperatives in Uvs Aimag (O17) and the head of the NAMAC (O18). The advantages and problems of horticultural cooperatives mentioned by those stakeholders are further elaborated in the following chapter as well as Annex 6.

An obvious strength of cooperatives is the collaboration among members. Being organised in a cooperative increases the capacity of individual members they receive *mutual help* from each other (O12). If a farmer unexpectedly falls during planting or harvest time, another farmer can step in in order to help (O17). Cooperatives thus present a social safety net and reduce production risks from unpredictable events and the produced output is greater and steadier when compared with individual producers in the study site. As mutual help inspires trust among members, they are also more likely to lend equipment or resources to each other. Within the cooperative, members may also accept different forms of payment rather than money. Since trust and the willingness to help is high, people in cooperatives sometimes pay hay or other resources as remuneration instead of cash (O17). This can help to relieve the financial burden on farmers with a seasonal shortage of money. Mutual help also includes the sharing of information and knowledge transfer: if one member has a question related to his or her production, the other members often provide knowledge and advice (O12). Cooperatives thus not only foster mutual help, but also mutual learning (O17).

Other than information, cooperative members oftentimes share (*technical equipment*) (Zhu et al., 2018). Thus, the personal expenses for each farmer are much lower as acquisition costs are shared among members. This also saves time, as equipment can be accessed in a shorter time compared to individual farmers. Apparently, waiting for a truck to hire on the market takes much longer than having one at hand within the cooperative (O17).

Being able to market and sell products together collectively is an advantage, too (O12). Horticultural cooperatives possess more *bargaining power* over purchasing prices with wholesale buyers compared to individual small-scale producers. Furthermore, the NAMAC provides a network that allows cooperatives to sell their produce to nearby cooperatives that produce different goods. As a trade between cooperatives, for example, hay or sea buckthorn are sold to each other for prices which benefit both parties (O17). Cooperatives also negotiate with local banks over available loans on behalf of their members. By serving as a guarantor, cooperatives thus provide favourable financial conditions to its members (Zhu et al., 2018).

In contrast to private enterprises, the profits generated by a cooperative are divided among its members. In the study site, profits were rarely disbursed in cash but rather reinvested in equipment. Those benefits are perceived as socially just as every member benefits to the same degree (O17). As members do not only take

part in the benefit-sharing but also in the decision-making of their cooperative, they are directly involved and value their *participation* (ibid.).

Many cooperatives in the study site also reported to celebrate the national holidays together with all members. This social aspect of cooperative activities makes them attractive to the rural population (ibid.). Apart from the obvious economic incentives of joining a cooperative, members also aim to satisfy their *social goals* by participating in such events (Hansen et al., 2002).

Unfortunately, the support of cooperative organisations can create wrong incentives for individuals to establish such an arrangement without internalising the concept of cooperation. Many agricultural cooperatives in Mongolia have been founded with the sole purpose of obtaining benefits from international donors and government programs (Rasmussen & Annor-Frempong, 2015). As the head of NAMAC explains, those cooperatives are referred to as *owner-based cooperatives* and distinguish themselves from the normal *member-based cooperative* in their *absence of cooperative intentions*. An owner-based cooperative may be formed among friends or relatives to receive the certified cooperative status needed apply for funds and benefits (O12). This is especially the case when international donors and development agencies offer their (financial) support under the condition that people are organised in a cooperative (O19). Both the reputation and the development of Mongolian agricultural cooperatives suffer as a result of owner-based cooperatives. NAMAC thus tries to tackle that issue by making changes in the Mongolian law on cooperatives which shall be issued soon.

The head of NAMAC pointed out that cooperatives are inseparably connected to Mongolian history (O18) especially during the socialist time. Agricultural cooperatives were the prevailing mode of production and taught people how to cooperate and manage their production collectively. After the system change, cooperatives were portrayed very poorly in public media coverage and even compared with slavery. Thus, the good *reputation* of agricultural cooperatives was dismantled and they were depicted as a backwards concept not fitting the age of the market. The transition during the 1990s thus destroyed faith in cooperative organisations which is only slowly recovering (ibid.). The word “cooperatives” is badly connoted and an alternative Mongolian term should be used to refer to those forms of organisation among farmers (I2).

Trust among its members as well as trust between its members and the management are necessary requirements for functioning cooperatives (Hansen et al., 2002). Due to the bad reputation of cooperatives and the limited evidence for success covered through public media, there is a rather low degree of trust and will-

ingness among individual farmers to invest their private assets in such an organisational form (Rasmussen & Annor-Frempong, 2015). It is only slowly that this attitude changes as more successful cases of agricultural cooperatives that generate profits for their members are made public. Still, the head of the NAMAC branch in Uvs Aimag points out that the producers interest in join cooperatives is restrained by a *lack of trust*. The most successful cooperatives are usually the ones with the longest tradition which thus gave their members the time to learn how to trust each other (O12). Individual producers without cooperative experience are often reluctant to join as they do not trust the cooperative management team to administer their money (I2).

Next to external factors, the success of agricultural cooperatives mainly depends on the *commitment and motivation* of its members. If true cooperative intent is missing, the impact of cooperative organisation is limited (Rasmussen & Annor-Frempong, 2015). Usually, the degree of participation in cooperative doings is distributed unequally among the members (Myagmarzul, 2016). Some members are perceived as "lazy" as they show behaviour of free riding and benefit from cooperative activities without investing any efforts (O16). This phenomenon can especially be observed in large cooperatives (I2). The lack of commitment can lead to mistrust and discontent among the active members, thus damaging the group cohesion and cooperative strength (Hansen et al., 2002).

Almost all stakeholders mentioned the *current taxation law* as an obstacle for cooperative organisations. As Iyer (2015) explains, cooperatives are not considered business entities under civil law but only under tax law. As a consequence, the collective marketing of members' products is considered a value addition by the cooperative and taxation applies accordingly. Value added tax (VAT) is applied on all cooperatives with sales over 10 million MNT (USD 3,600) and associated costs are applied on member transactions (Rasmussen & Annor-Frempong, 2015). If cooperatives join together in order to produce different products, double taxation occurs for this integration (I2). The current taxation law thus puts a burden on cooperative activities as they have to carry high costs. NAMAC has been active proposing amendments to improve the existing law for many years (O19).

Moreover, the *complicated bureaucracy* of cooperative efforts highlighted as a limiting factor during the focus group discussion with horticultural cooperatives (O16). Inspections and legal obligations are perceived as a high burden for cooperatives. Furthermore, the social premium report of all members is required when the cooperative wants to apply for a loan or program. As remotely living members

require a lot of effort to be reached, this bureaucratic requirement delays and complicated the application for funds.

As members usually do not pay a regular membership fee but merely a one-time entry fee, almost all cooperatives suffer from financial shortcomings (O12). Many cooperatives do not have sufficient collective capital assets (I2). Since sufficient collateral is usually lacking, cooperatives also have difficulties acquiring finances for their members which constrains their ability to purchase inputs (Myagmarzul, 2016; Rasmussen & Annor-Frempong, 2015). Due to the bad reputation and lack of information, Mongolian banks tend to overestimate the risk of lending to agricultural cooperatives and thus do not offer loans (Iyer, 2015). The horticultural sector is seen as especially risky and difficult since planting, growing and harvesting takes up a lot of time. Profits only return with a time lag which in many cases exceeds the period in which acquired loans have to be paid back (O12). Hence, the main limiting factor for cooperatives to expand their activities and production volume is the *lack of finance* which does not allow for the purchase of productive assets or any other investments to be made (O17).

### 6.3.2 Outlook

Despite the many problems which horticultural cooperatives in the study site are facing, the advantages of cooperative organisation outweigh the existing difficulties. This perception was shared by the consulted stakeholders who showed a high willingness to invest further efforts in developing sustainable cooperative structures. A detailed list of ideas and activities to strengthen cooperative efforts may be obtained in the Annex 7.

A special interest exists for the diversification of agricultural activities and thus the establishment of *mixed-cooperatives* producing various goods. In accordance with livelihood diversification, the diversification of cooperative activities can help to strengthen resilience as production risks are spread and multi-incomes are generated for its members (Myagmarzul, 2016). Mixed-cooperatives can integrate livestock as well as crop and horticultural production which increases the product portfolio and may lead to synergies between the different production branches. As the manager of a mixed-cooperative involved in hay, sea buckthorn as well as livestock production in Taraialan Soum, Uvs Aimag explained:

*"We are intensifying relationships among herders and farmers. If herders really need hay in the winter time, they can acquire it at a cheaper price from the crop production branch. This creates trust and attracts people to the cooperative."* (O15)

Due to the positive effect on trust and further benefits for its members, the forming of mixed-cooperatives is also promoted by NAMAC. Cooperation between herders and farmers is thought to have various advantages. Animal manure can be exchanged for hay or legumes. Thus, farmers' soils benefit from organic fertilisation and herders' livestock benefit from nutritious fodder during winter time (O18). Additionally, this exchange of production outputs closes local nutrient cycles, a key factor for sustainable agriculture (Sumner, 2009). As all agricultural activities are highly seasonal, horticultural and livestock production complement each other very well regarding the income opportunities mixed-cooperatives members: while crop production creates incomes during summer time, livestock production offers income during winter time (O18).

Another option for cooperative diversification is horizontal expansion through tourism. The example of the *Tonghui Agricultural Cooperative* in Inner Mongolia, in Northern China, shows, rural tourism may successfully organise a cooperative which creates additional income for its members while at the same time promoting an established brand and own products (Zhu et al., 2018). As an extensive case-study showed, members of the above mentioned cooperative facilitated homestays or farm visits and let tourists participate in activities like fruit picking, horse riding and cooking with locally available products (ibid.). The head of the NAMAC Uvs branch has a similar vision for cooperatives in the Aimag:

*"I would like to see our cooperatives developing tourism. I know a lot of examples from other countries. We do not want any large-scale tourist camps; we want small stays with the families. We already had some tourists from Austria. (...) They visited the members of the cooperatives as they were interested in milking mares and making dairy products like yoghurt and milk-vodka. (...) If cooperative members could build nice gers, they could also offer overnight stays." (O12)*

According to his plans, the Aimag's NAMAC branch could be responsible for coordinating tourist visits and offering information. The cooperative members would receive 50 % of the profits which helps to support incomes in times of seasonal financial shortcomings. The other half of the generated income could be reinvested in other cooperative activities.

## 6.4 Discussion on development potential and challenges of inclusive and sustainable horticulture

### Ecological sustainability

A vital role is attributed to horticulture in preserving biodiversity and safeguarding ecological systems, counteracting the overuse and degradation of soil, water and other resources by conventional agricultural practices (Kumar, 2014). Certain criteria have been introduced to define the environmental sustainability of production techniques in horticulture (Nair et al., 2014). These include (1) the use of cover crops to maintain soil fertility, (2) the use of crop rotation to increase soil moisture, nutrients and yields, (3) fertility management based on a balanced use of organic and synthetic fertilisers, (4) weed management, (5) irrigation that improves the efficiency of water usage, and (6) tillage applications that aim to conserve the soil. Additionally, intercropping has attracted growing interest due to its ability to support the replenishment of natural resources used during crop production and to increase productivity (Ouma and Jeruto, 2010).

Since those agricultural practises are often applied by small-scale farmers in the study site, serious concerns regarding the *ecological sustainability* of horticulture have been raised by academics we interviewed. Soil degradation and water depletion are two impacts of unsustainable horticultural practices which represent a threat to local agro-ecosystems. Adequate techniques for natural resource management are needed to guarantee long-term sustainability of horticultural activities in the study site. In any case, water availability and accessibility play a crucial role for horticulture production in the study region. As water is already and will continue to present the main limiting factor for horticultural development, both donor projects and academia are strongly advised to consider it in all efforts undertaken. Furthermore, the agricultural sector is exposed to growing pressure as a result of the climate crisis. Pressure on water availability, food supply and agricultural incomes takes a toll on the welfare of rural households and individuals with limited access to assets, intensifying already existing vulnerabilities (IPCC, 2014a). Strengthening farmers' resilience and adaptive capacity is therefore predicted to become increasingly relevant amidst ongoing climatic developments (Williams et al., 2019, p.124). Thus, potential adaptation practices like improved water and cropland management, increased soil organic matter, maintaining local genetic diversity and the reversal of soil erosion should be promoted. At the same time, farming, when done sustainably, holds many opportunities for mitigating climate change through reducing nitrous oxide emissions from fertiliser applications, decreasing methane emissions from improved manure application and sequestering

carbon through improved cropland management. These could all create important synergies with adaptation measures (IPCC, 2018c). Those options should be carefully considered when developing horticultural activities in the study site.

### **Social sustainability**

The fulfilment of needs and well-being of farmers, workers and the local community take centre stage in horticultural systems concerned with promoting *social sustainability* (Janker and Mann, 2018, p.13). This includes the provision of non-discriminatory working conditions within the sector in terms of race, ethnicity, class, and gender, as well as adequate wages, social security and access to decision-making (Sumner, 2009, p.467). In the study area, further attention should be paid to the distinct role of women by overcoming inequalities in the endowment of productive assets (e.g. land, water, seeds, machinery and finance) and by fostering women's decision making over the use of time and income on the household and community level (Akter et al., 2017; Meinzen-Dick et al., 2014b). By taking account of women's reproductive labour, the view on sustainability in horticultural systems should be broadened beyond aspects of the production and distribution of goods (Agnes et al., 2014; Meinzen-Dick et al., 2014a). The reported exploitation of seasonal labour as well as low bargaining power of marginalised farmers further questions the social sustainability of horticultural activities in the study side. On the other hand, horticultural systems act as important vehicles for (seasonal) income creation within communities. Enhanced provision of employment opportunities in weeding, planting and harvesting on small farms can be achieved due to the high manual labour intensity of horticultural products (Weinberger & Lumpkin, 2007). Furthermore, *cooperative movements* have the potential to empower small-scale producers and increase their partaking in decision-making processes which ultimately respond to local community needs. Through agricultural extension by private or public actors, capacities on cooperative organisation as well as technical innovations can be increased. Thereby it is important to consider the perception of changes among local stakeholders as it strongly influences the successful uptake of available adaptation options (Williams et al., 2019, p.126). Enhancing the resilience of horticultural producers depends on the inclusive generation, dissemination and application of relevant knowledge (IPCC, 2018c). While differences exist between locally institutionalised and scientific knowledge, efforts should be made to find similarities across them and to overcome the perceived difference between the two (Agrawal, 1995; Williams et al., 2019, p.133). The high interest and willingness of the local population to engage in horticultural production may be an enabling factor for further development of this sector.



### **Economic sustainability**

Important implications regarding the *economic sustainability* of horticultural systems can be derived from its community-oriented approach. The diversity of enterprises, scale and size of farms, and the characteristics of markets, including for labour, are considered key elements in ensuring the functioning of horticultural systems (Nair et al., 2014, p.73). The local economy typically plays an essential role in creating and maintaining farmers' markets, ensuring profitability and establishing marketing bodies all of which can contribute to building alliances and resilience on the community level. By the very nature of the system's local attributes, external pressure, including the impetus to grow, may be difficult to deal with for some local stakeholders, while benefiting selected others, as a result of differences in asset endowments (Allen et al., 1991; Sumner, 2009). Accordingly, the locational advantage of Khovd Aimag may decrease the competitiveness of vegetable producers from Uvs Aimag. Careful consideration must thus be given as to whether and how the coupling of horticultural systems with markets beyond the locality can become economically viable while at the same time benefitting the people involved in the sector, including marginalised groups of society. Both storage and processing facilities need to be accessible to the local population in order to add value to horticultural production and increase their financial means.

## 7 Analysis of the tourism sector

### 7.1 Tourism attractions and related risks

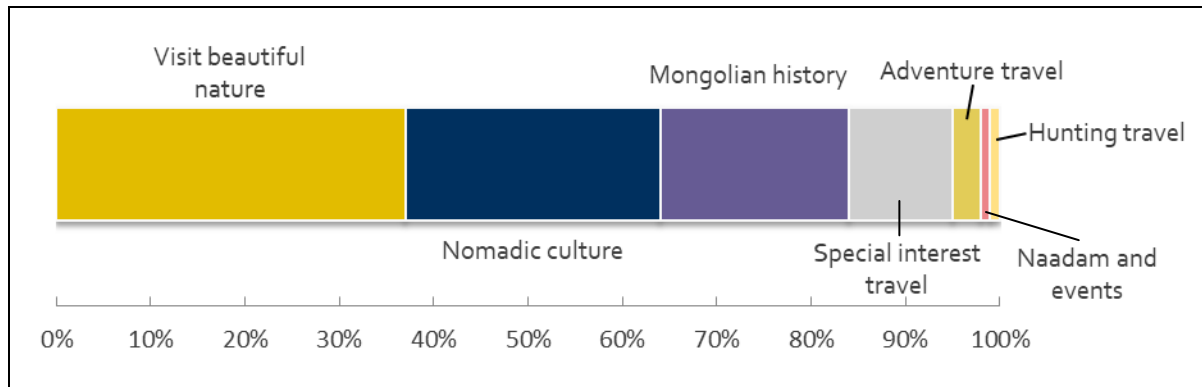
Intertwined *culture and nature tourism* is the most popular form of tourism in Mongolia (Acorn Tourism Consulting Ltd, 2015; Buckley et al., 2008; JICA, 1999, p.16) and were indicated as reasons to travel to Mongolia by the majority (see Figure 14). In the following, cultural and nature tourism are discussed separately, though, it has to be stressed that the two are oftentimes combined. Other forms of tourism performed in Khovd and Uvs Aimag are shopping and business tourism, educational- and voluntourism as well as hunting and fishing tourism. Cultural tourism can be defined as:

*"Visits by persons from outside the host community motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region or institution."* (Silberberg, 1995, p.362)

Cultural tourism includes the commodification of certain cultural practices and experiences in order to generate revenue from tourism (Recupero, 2015).<sup>14</sup> United Nations Educational, Scientific, and Cultural Organization (UNESCO) Intangible Cultural Heritages are registered in Mongolia (Wikiwand, 2019); these include among others throat singing, falconry, Mongol *ger* and the *naadam* festival. In Khovd and Uvs Aimag, the ethnic diversity<sup>6</sup> is among the highest in Mongolia (G5, O10). Beside the distinct history, the groups also own different traditions and customs, like *ger* types, food, drinks and traditional clothing (G5).

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<sup>6</sup> In Uvs about 40 % are Dörböd, 34 % Bayad, 16 % Khalkha and 6 % Khotong (Atwood, 2004), furthermore, there are also some Tuvans and Kazakhs residing in Uvs Aimag. In Khovd, Khalkha make the majority with ca. 30 %, followed by the Zahkchin (24 %) and the Kazakh (10 %). Khovd Aimag is also home for Uriankhai, Oolods, Torguud, Minghads, Dörböd and Tuvans.



**Figure 14: Motivation for tourism in Mongolia.**

Source: Adapted from Badarch, 2016, 183.

### 7.1.1 Cultural tourism – between romanticising and empowerment

"*Nomadic culture*" is cited as a potential source for tourism development by the government (G5, G35, G30; Marin, 2008, p.81), international donors (I3) and the private sector (P1, P10). Experiencing "nomadic culture" is indicated as the second most popular reason to travel to Mongolia (see Figure 15). Tourists are interested in experiencing authentic cultural experiences (Wei et al. 2018, p.89), which is confirmed in this statement: "*Tourists want to stay with the families in the gers, taking part in their daily life with livestock and horseback riding.*" (P10). Specific "nomadic" cultural elements like *ger* camps (G5, G32, I4, O14, P9; JICA, 1999, 95), festivities (A8, O3) and diverse activities are promoted in Khovd and Uvs Aimag. Activities for tourists to experience the "nomadic lifestyle" and its cultural features include horse and camel riding, performances of musical events and traditional games, local foods, and the marketing of handicrafts (G2, G5, G11, G26, G30, I8, I9, I10, P4, P7). Existing examples of such commercialisation of herders' way of life were described in Tarialan Soum:

*"[There is one touristic tour that] includes everything: an ethnic show, traditional performance, milking of the animals and worshipping the mother tree."* (O14)

*Cultural events* are a common occasion where traditional customs are performed. Events are used to increase tourist numbers and to extend the season (ADB, 2019; G35, G4). Events like *naadam* are a popular travel occasion for domestic tourists for visiting friends and relatives (Dorjsuren, 2009, p.6). The Golden Eagle Festival, which is held during the off-season in October, attracted 1.000 international tourists (and about 1.000 domestic visitors) to Bayan Ulgii Aimag in 2018. Based on the success of the Eagle Festival, the governments in Khovd and Uvs Aimag also promote cultural events to attract more tourists.



**Figure 15: Traditional horse games and performance of customs at the Tea Road festival in Khovd Aimag.**

Photos: SLE, 2019.

*Religious tours* are popular among Mongolians (Dorjsuren, 2009). Buddhism and Shamanism are commonly practiced in Mongolia (Upton, 2009). Shamanism offers an attraction for both domestic and international visitors, though, the commodification is regarded as “*not easy*” (I14), as Shamans do not want to be exposed or “*showed off*” (ibid.). Nevertheless, different tour operators offer Shaman tours and in Ulaanbaatar a Shaman ritual can be booked with translation (for USD 25 per person/hour). Also, in Uvs Aimag, one interviewee stated that a famous Shaman attracted many visitors, who asked for treatment or advice (G27). *Health tourism* is another popular travel purpose, especially for domestic tourists (Dorjsuren, 2009). Therapies include bathing in mineral lakes, sitting in sand dunes and milk treatments (ibid.; P3, O10, P8). The mineral water of the Khyargas Nuur for example, promises to cure many illnesses (P8).

Cultural tourism can *strengthen the cultural traditions and identities* of local people (Paddock & Schofield, 2017, 16-17). A spokesperson of the Khotong ethnic minority group in the Uvs Province (Atwood, 2004, pp.310-311) confirmed this by sharing his vision: “*We want the world to know about our special ethnic group: our way of life, culture, living. We are the only group like us in the world*” (O14). Cultural tourism thus leads to empowerment and a feeling of pride (Sereeter, 2014; Acorn Tourism Consulting Ltd, 2015, p.43). The intercultural exchange is also perceived as beneficial for both tourists and host communities (Leung et al. 2018; O11, P10). This aspect of cultural tourism is captured best by a private tourism stakeholder, who stressed: “*My vision is that people in Europe know about their way of nomadic life and how pure their way of life is*” (P10).

Despite these opportunities, certain risks are related to the *commodification of cultural customs*. Firstly, cultural tourism can interfere with local people's main livelihood activities (P1). If too many tourists stay with families, it leads to a "tourism overload", meaning that "*families get tired of too many tourists*" (I4). Secondly, presenting traditions to tourists can construct an idealised image of local people's livelihoods (Paddock & Schofield, 2017, pp.16-17). Touristic *ger* camps for example, serve to portray an image of "Mongolness" and construct a romanticised image of herder's livelihoods (Myadar, 2011, pp.354-55; Paddock & Schofield, 2017, pp.16-17). Thirdly, cultural tourism also romanticises and reinforces traditional gender roles (Cole, 2018, p.7). For example, women are expected to host the guests, while exclusively men perform traditional games, such as wrestling or horse-riding games, as observed in the field research. Fourthly, it increases the dependence of the host communities on the tourists, who are in the search for "pristine cultures and primitiveness" (Wei et al. 2018, p.89), which reinforces the "otherness" between the host communities and the tourists (ibid., p.97; Paddock & Schofield, 2017, pp.16-17).

The commercialisation can also cause changes, or loss in the original meaning of the customs (Leung et al. 2018, p.25). Looking at the example of eagle hunting (traditionally performed by Kazakh people in Bayan Ulgii), one interview partner raised concerns: "*If everyone comes to see the eagle hunting, it leads to fake hunting.*" (P10). Also, at tourist hotspots near Ulaanbaatar, eagles are offered to take picture with for a fee. This firstly has the effect that numbers of tamed eagles in the Western Provinces decrease (T12) and secondly, the original purpose of the tamed eagles changes from being hunting animals to being promoted as a "photo object".

*Visiting historical sites* is another popular reason to travel to Mongolia. Insufficient visitor guidance and planning had caused some damage to historic sites (P1, P9, own observation). HDRTC (2019) highlights that the funds for protection and rehabilitation of historical and cultural sites is lacking. One example is the Khoid Tsenkher cave in Khovd Aimag, which was at the time of research exposed to visitors and vandalism, even though the rock paintings are under protection by the government since 1971 and on the tentative list of Mongolia of the UNESCO World Heritage since 1996 (Escape Mongolia, 2019). One interviewee raised his concerns about the bad condition of the cave and the need for research, pointing out that local people are unaware of the cave's value and uniqueness: "*we have to do something about it. Mongolia has informally nine wonders and this is one of them.*" (P9). Due to these risks, tourism related to historic and archaeological sites, must be managed with caution (Leung et al., 2018) and these sites should

only be promoted as a tourist attraction, if appropriate preservation and protection management is established.

### 7.1.2 Nature tourism – between commodification and conservation

*Nature tourism* is indicated as the most popular reason to travel to Mongolia (T<sub>3</sub>, T<sub>4</sub>, T<sub>5</sub>, T<sub>9</sub>, G<sub>35</sub>). Jeep tours, hiking and horse or camel riding are a common way for tourists to explore the landscape (Acorn Tourism Consulting Ltd, 2015; Wigsten, 2005). *Recreational activities*, like camping and barbecuing at natural sights is popular among domestic tourists (own observation, P<sub>12</sub>). Local herders mentioned the popularity of the Khar Us Nuur and Durguun Nuur among domestic tourists: “*there are many domestic tourists at the lake area who come there to relax and enjoy the nice nature*” (L<sub>3</sub>). In Uvs Aimag, the Uvs Nuur, the Uurug Nuur and the Khyargas Nuur attracts many tourists for recreational and water tourism (I<sub>10</sub>).

For both Aimag *hiking tourism* was identified to have great potential (HDRTC, 2019; O<sub>2</sub>, O<sub>10</sub>). Even though some argue that trekking is an alien concept to Mongolians (Wigsten, 2005), hiking and climbing is becoming more popular especially among the urban Mongolian population (I<sub>13</sub>, P<sub>13</sub>, O<sub>4</sub>). Diverse clubs promote hiking and climbing trips on Facebook. Events offer a possibility to attract more tourists for outdoor activities. In Munkhkhairkhan Soum, a climbing event brought 200 climbers to the Soum (O<sub>4</sub>), which is a lot, compared to the 20 people, who climbed the mountain in 2019 (ibid.).

*Wildlife spotting, bird watching and fishing* are other popular nature tourism activities (Acorn Tourism Consulting Ltd, 2015; Laurie et al., 2010). The high diversity of birds makes Khovd and Uvs Aimag popular destinations for bird watchers (G<sub>36</sub>, P<sub>4</sub>, O<sub>2</sub>). Additionally, Textbox 4 goes more into detail about hunting tourism.

**Textbox 4: Hunting tourism in Mongolia.**

*Hunting tourism* is a high-end activity, usually organised by specialised companies. The central government coordinates hunting licences required for this activity (G20). In Khovd Aimag, about 42 international hunters arrive each year (ibid.). The prices for hunting an Argali sheep (male) is 50.000.000 MNT (USD 18.712), for Ibex 6.000.000 MNT (USD 2.245) (ibid.). The Aimag government identifies areas for hunting, based on the wildlife survey conducted every five years (G20; HDRTC, 2019). If hunting takes place in PAs, a trilateral agreement between the hunting company, the Soum and the central government is made (the PA administration is not involved) (G20). Some hunting companies share a part of the revenue with local groups, which is not obligatory but proposed from the local government (G20).

In Mongolia, most nature tourism activities take place in *protected areas (PAs)* (Strasdas, 2017). In the Khovd Tourism Program is noted that: "Protected Areas are one of the most favourable and suitable sites for tourism development." (UBTA, 2017). As PAs protect valuable landscapes, flora and fauna, tourism development in PAs needs special attention, which will be discussed in Chapter 7.5.

Nature tourism can have several *positive effects on nature protection*:

*"Tourism can also provide revenue directly to protected area authorities for conservation, incentivise local people to care for natural resources, and encourage the private sector to conserve biodiversity"* (Leung et al., 2018, p.12).

Hence, tourism increases the appreciation of natural sites and the protection thereof (Leung et al., 2018). Furthermore, tourism can boost the economy and ideally local people can generate additional income from it (ibid.). It is assumed that additional income from tourism makes local people less dependent on the natural resources and therefore improves sustainable resource use (ibid.). Converting this assumption to the Mongolian context, it means herders, who benefit from tourism, are less dependent on their livestock and would therefore reduce the herd size, which in turn would reduce grazing pressure (I1). Nevertheless, this assumption could not be proved in this study, as livestock acts like a bank to local people and additional income is oftentimes invested in it (see chapters on livelihoods).

Nature tourism is also associated with several *environmental risks*. The risks are related to pollution (e.g. through waste, carbon emissions), unsustainable re-

source use (e.g. water), landscape degradation (e.g. through infrastructure projects) and wildlife disturbance (Leung et al., 2018, p.24; Sereeter, 2013). The lack of tourism management as well as the unawareness and the behaviour of tourists, lead to these negative impacts (ibid.). When it comes to waste pollution, domestic tourists were perceived as environmentally less aware than international tourists (I8, O11, Dorjusuren, 2009).

Risks related to wildlife harassment are mentioned in the literature and by several interview partners in the two Aimags (G15, G34, I7, I8; Leung et al., 2018; Smiths, 2013). An environmental inspector in Chandmani Soum mentioned the lack of tourism guidance: "*Tourists can go anywhere, which is a problem.*" (G15). In same Soum, cases of behaviour changes of snow leopard have been reported, presumably due to the disturbance of tourists (I7). At Khyargas Nuur bird habitat changes have been noticed due to increasing tourism development near the breeding grounds (I9, G34). The soil erosion caused by unregulated traffic to touristic hotspots in PAs is further regarded as a problem (Strasdas, 2017). Newly appearing roads also pose a risk for wildlife; it is argued that improved accessibility does not only serve tourists, but also poachers (G15; Leung et al., 2018).

Sustainability in tourism must also consider the sector's longer-term and cumulative impacts amidst the growing pressure on the climate (Marsiglio, 2017; Moscado & Murphey, 2014). Tourism is estimated to account for at least 5 % of all global CO<sub>2</sub> emissions, while the sector's entire GHG emissions are as high as 8 % and reach a share of 12 %, when accounting for non-carbon impacts on climate change, which are primarily caused by air transport. This makes tourism more emissions-intensive than previously assumed. Out of the sector's entire footprint, about 40 % of CO<sub>2</sub> emissions and 75 % of all GHG emissions are attributed to passenger aviation (Bojanic and Warnick, 2019; Higham et al. 2019, p.1; Lenzen et al., 2018; Peeters & Eijgelaar, 2014, pp.1, 6). Compared to road, rail and waterborne modes of transportation, passenger aircrafts cause the most direct vehicle fuel emissions (IPCC, 2014b, p.610). Aviation emissions may rise by up to 300 % by 2050, which would account for 27 % of the remaining carbon budget to stay well below 1.5 degrees of global warming. Amidst the shortcomings in curbing emissions through technological efficiency gains and market-based mechanism (incl. carbon offsets), the IPCC states that "achieving significant reductions in aviation emissions will require reductions in the rate of growth of travel activity" and that people should be encouraged "to take shorter journeys (hence by road instead of by air), thereby reducing tourism total travel" (IPCC, 2014b, pp.639, 646; Higham et al. 2019, pp.1-2, 5).

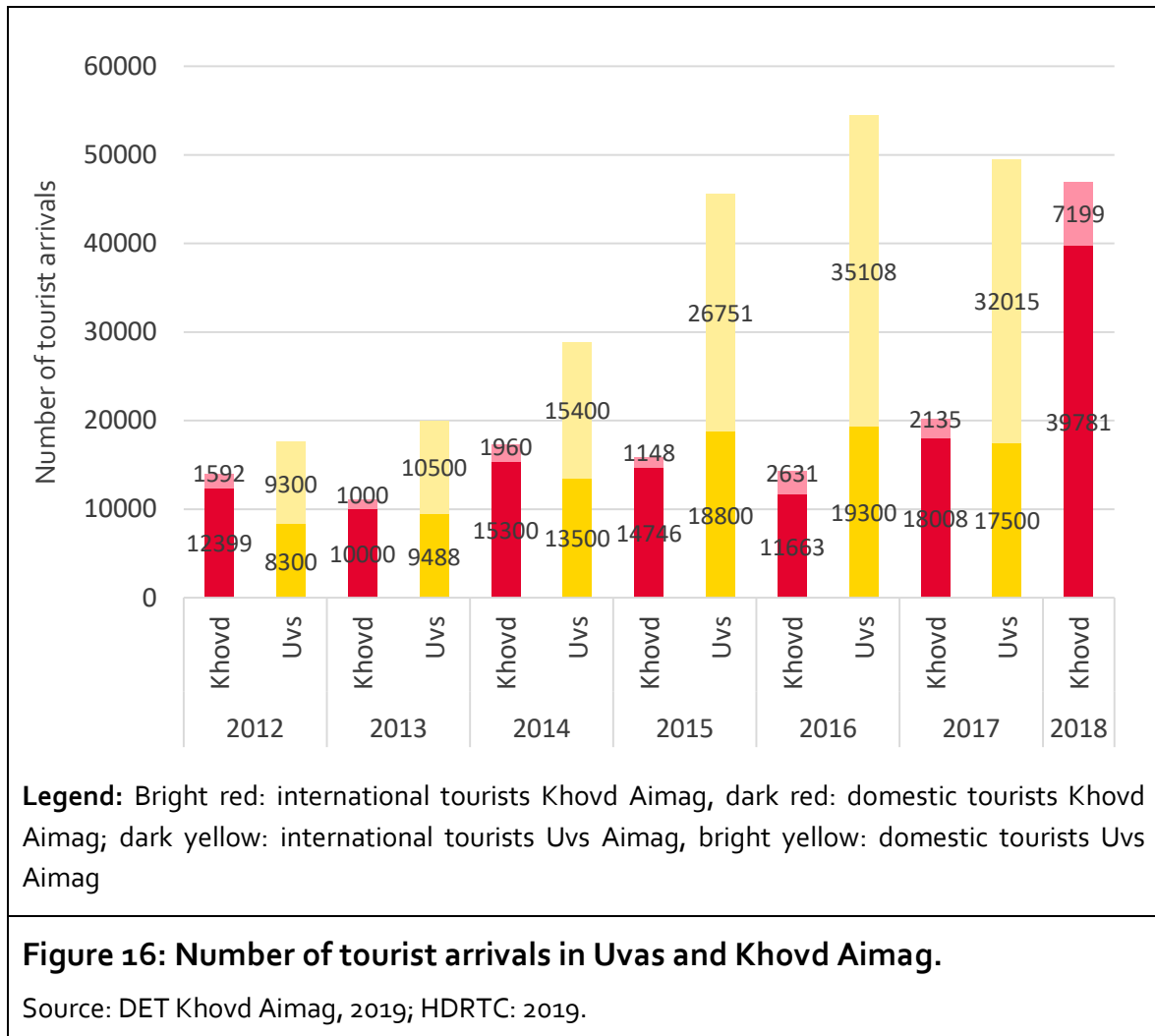


## 7.2 Tourism demand

In Khovd and Uvs Aimag, the number of tourists has increased. Between 2009 and 2018, the number of tourists has increased six-fold in Khovd. The number of hotel and camp stays in Uvs has increased six-fold, too (from 1.770 in 2012 to 7.083 in 2018) (DET Uvs Aimag 2019). Domestic tourists made the majority (85 %) of all visitors in Khovd Aimag in 2018 (DET Khovd Aimag, 2019). In contrast, in Uvs Aimag the majority of tourists were international (65 %) in 2017. This difference can be explained by Uvs' location close to the Russian border (see Chapter 7.2.2 on international tourists).

The trend of increasing tourist numbers has different reasons. Firstly, it is argued that domestic tourists are "saturated" by visiting the central regions of the countries and want to explore more remote regions of Mongolia (G26, G5, P1). Secondly, the road connection has improved and brings tourists from Ulaanbaatar to Ulaangom in only 24 hours (G35). Despite these trends, the total "number of international tourists and the number of the domestic travellers to the local economy is relatively small" (UBTA, 2017). Compared to other regions in Mongolia, only a small number of tourists visit Khovd and Uvs Aimag (P1, P9; Wigsten, 2005). Reasons that explain this are the remoteness, the lack of infrastructure, human resources (skills and knowledge), marketing and limited tourism offers (G5, I11, I5, P9, P1; UBTA, 2017).

In Mongolia, no formal monitoring of tourist numbers exists (G35). Only the numbers of border crossings and the number of nights in hotels and camps are registered (*ibid.*). The number of inbound travellers is misleading as many foreigners, who work or make trade in Mongolia arrive with a tourist visa (I13). In Khovd and Uvs Aimag, the number of tourists has been estimated by the Aimag government (*cf.* Figure 16). Nevertheless, these numbers must be interpreted with caution, as no formal monitoring exists (G35; I13). Also, no data on the average duration of stay or the average daily spending of tourists exist. Acorn Tourism Consulting Ltd (2015, 4) indicate a three-week average stay for European and North American tourists and an 8-9 days' average stay for Japanese visitors (*ibid.*, JICA 1999, p.46). Taking into consideration the fact that that international tourists first travel to Ulaanbaatar and then to the provinces by plane, car or bus, the average stay of tourists in the Western Provinces might be shorter. An adequate monitoring system has to be implemented, to manage tourism successfully (Leung et al., 2018).



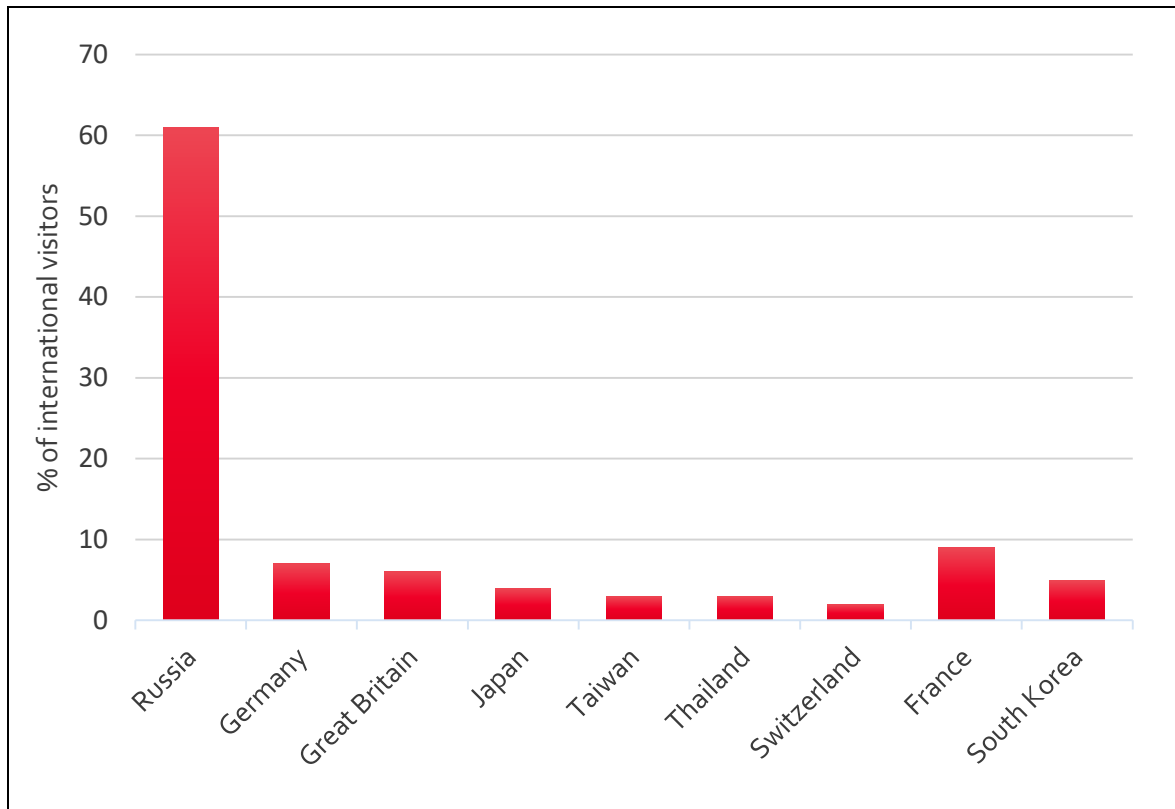
### 7.2.1 Domestic tourists

During the socialist period, it was popular amongst Mongolians to spend holidays in resorts and spas (Dorjsuren, 2009). Before 1990s, 115 spas and sanatoria were established all over Mongolia, including three in Khovd and four in Uvs Aimag (ibid.). After the 1990s, holiday visits decreased due to multiple economic crises (ibid.). Since the 2000s, the number of domestic tourists has increased again, as the private sector started to grow gradually (ibid.). The middle class from the urban centres in particular can nowadays afford weekend and holiday trips (ibid.; p.9). The potential for domestic tourism has long been underrated (Dorjsuren, 2009; p.9). Mongolians travelling in their country were not even considered as tourists in the Tourism law of Mongolia (GoM, 2000) until 2019 (G35). In 2017, international tourists spending accounted for 70.9 %, while domestic spending made almost one third (29.1 %) of the travel and tourism's contribution to GDP (WTTC, 2018, p.6).

The provincial governments of Khovd and Uvs Aimag are more interested in developing the international tourism market (G20, p.9). The preference for international tourism assumes that they spend less, as many domestic tourists visit families or friends, and are usually not using services such as tour operators and car rentals (Dorjusuren, 2009; Strasdas, 2017; l1). A representative of the Aimag government in Khovd confirmed this: “*Domestic tourism generated less income for local people active in the sector*” (G20). The fact that international tourists pay different prices than Mongolian tourists for staying at *ger* camps or at participating at events, manifests the assumption that domestic tourists’ willingness to pay is less (l8). For example, the entrance fee to the Golden Eagle Festival in Bayan Ulgii for international visitors is USD 30, while it is free of charge for Mongolian visitors. Due to the missing statistical information, it remains unclear, how many domestic tourists are willing to spend and how much they actually contribute to tourism revenue. Though, it is estimated that the total spending of domestic and international tourist is more or less equal (Strasdas, 2017). Examples from Lake Khovsgol show that total revenue for renting out horses, could even be higher from domestic than from international tourists (Dorjusuren, 2009). The domestic tourism market is growing and thus needs to be properly addressed.

### 7.2.2 International tourists

Most of the international tourists visiting Mongolia come from the neighbouring countries China (85.855 tourists) and Russia (71.274 tourists). In terms of arrivals, the Mongolian neighbours are followed by Korea (47.152), Japan (10.576), USA (11.183), Kazakhstan (11.287), Germany (6.366), France (5.842), Great Britain (3.290) and Australia (4.487) (MoET, 2018). In Uvs Aimag, 61 % of the international tourists come from Russia, followed by France (9 %), Germany (7 %) and Great Britain (6 %) (Figure 17).



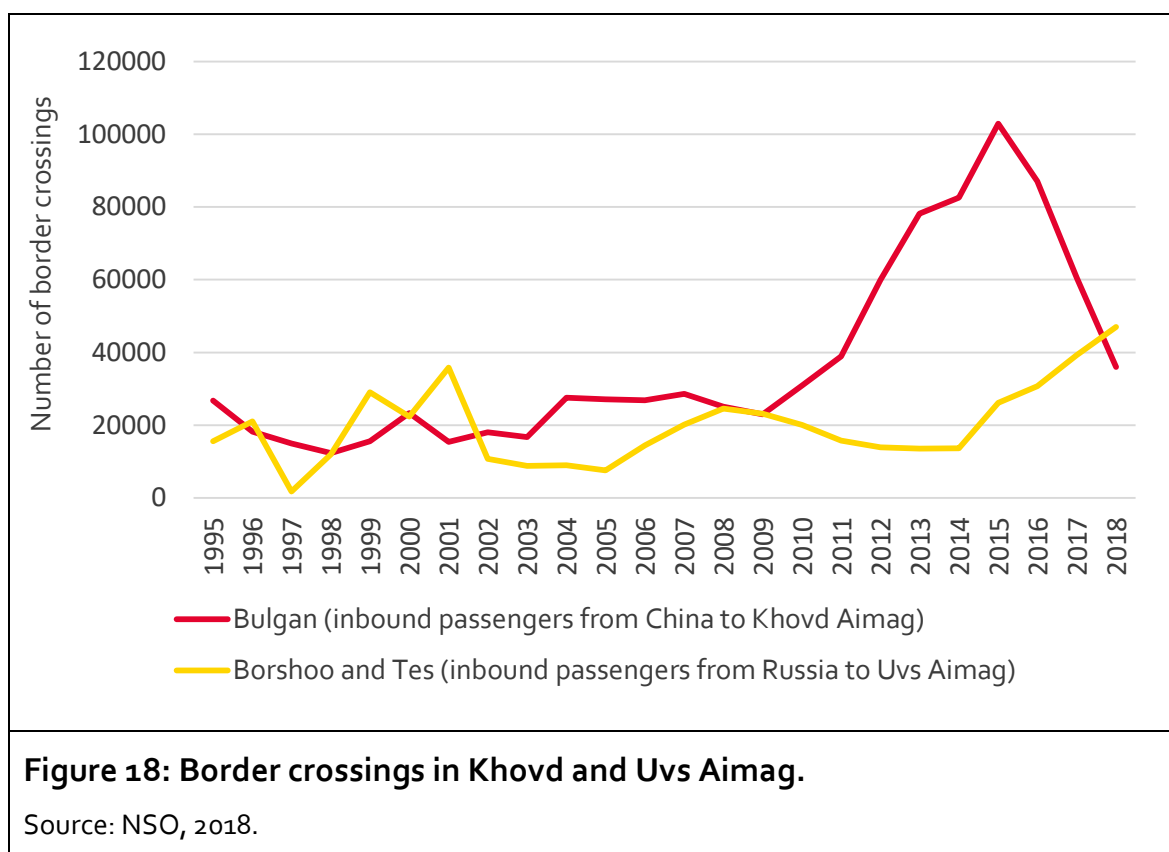
**Figure 17: Country of origin of international visitors to Uvs (in %).**

Source: DET Uvs Aimag, 2019.

Since the elimination of visa fees in 2016, the number of Russians traveling to Uvs Aimag has doubled (G26) (cf. Figure 18). This explains the comparably high ratio of international tourists travelling to Uvs Aimag. In 2018, 47,010 Russians visited Uvs Aimag, many Russian tourists travelling to Uvs Aimag come from the neighbouring regions and belong to the ethnic group of Turkish-speaking Tuva, who are also native in Western Mongolia (I8, T11)<sup>7</sup>. Shopping tourism is especially common among Russians tourists (I8, G26, T11), as the prices for products are lower, like one tourist indicated:

*"We love to travel to Mongolia, because the prices of things are two times cheaper and the quality is better than ours. Depending on the season we buy T-shirts, towels, socks, sweaters, jackets, jeans and so on." (T11)*

<sup>7</sup> The purpose of Chinese border crossings to Khovd Aimag was not assessed in the research, but it is assumed that many Chinese travel to Mongolia for trade purposes.



## 7.3 Tourism value chain

### 7.3.1 Organisation of travel to Khovd and Uvs Aimag

Most international tourists arrive via plane or train to Ulaanbaatar (JICA, 1999). From there, they travel by bus, rental car or plane to Khovd and Uvs Aimag. Ulaangom and Khovd both have an airport, which offer direct flights to and from Ulaanbaatar (ca. two hours). Travelling by road from Ulaanbaatar to Khovd Aimag takes about 2-3 days and to Ulaangom takes about 24 hours. Exceptions make the arrivals from Russia and China, entering the Western Provinces in Khovd and Uvs Aimag, respectively.

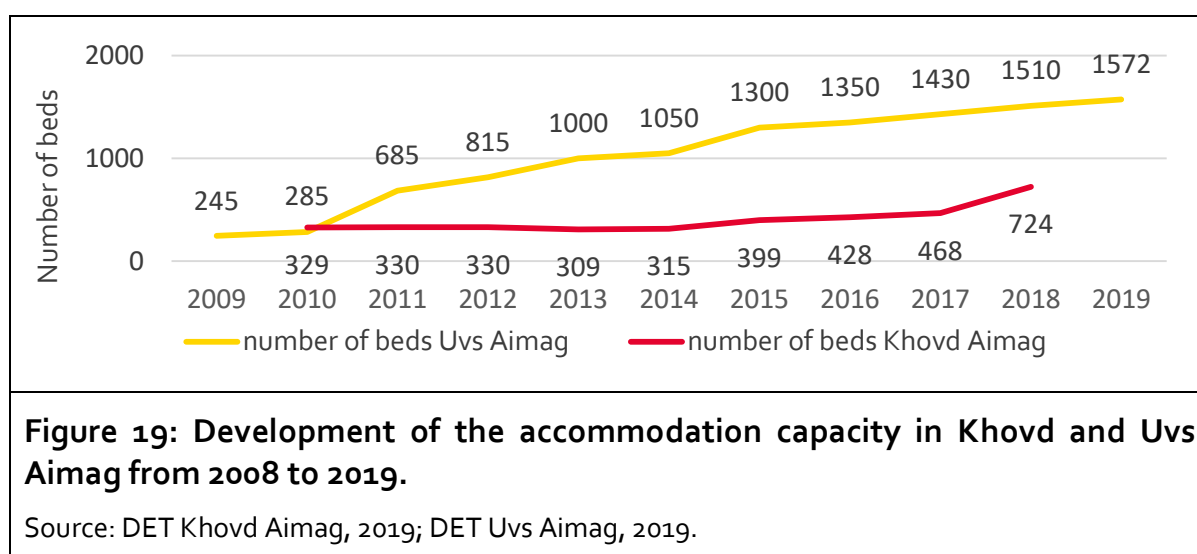
Tour operators play an important role in the organisation of travel. Wigsten (2015) describes a vertical system of actors reaching from local guides to international tour companies. Some international tour operators carry out all services of a tourist trip internally (from marketing to guiding) (P1). Other tour operators out-source services, meaning that Mongolian partners organise travel on the ground (Acorn Tourism Consulting Ltd, 2015). Besides established tour companies, guest houses based in Ulaanbaatar organise tours including drivers and guides on an informal basis (I4). Another way of organising travels are digital platforms that link local guides directly with tourists (P10). Some travellers also organise their trips

individually (T<sub>9</sub>). Domestic tourists usually perform their trips without any assistance (Dorjusuren, 2009).

The Western Aimags represent a single tourism destination, as tourism does not stick to administrative borders (UBTA, 2017; Wigsten, 2005). Khovd and Uvs Aimag receive fewer tourists than Bayan Ulgii Aimag, which makes them considered to be among the most untouched (P<sub>10</sub>). The two Aimags are hence a new tourism frontier, which is according to the ADB (2019) of special interest for tourists. The road connection from Ulaanbaatar to Bayan Ulgii leads through Khovd Aimag, which is an opportunity for tourism development (P<sub>9</sub>).

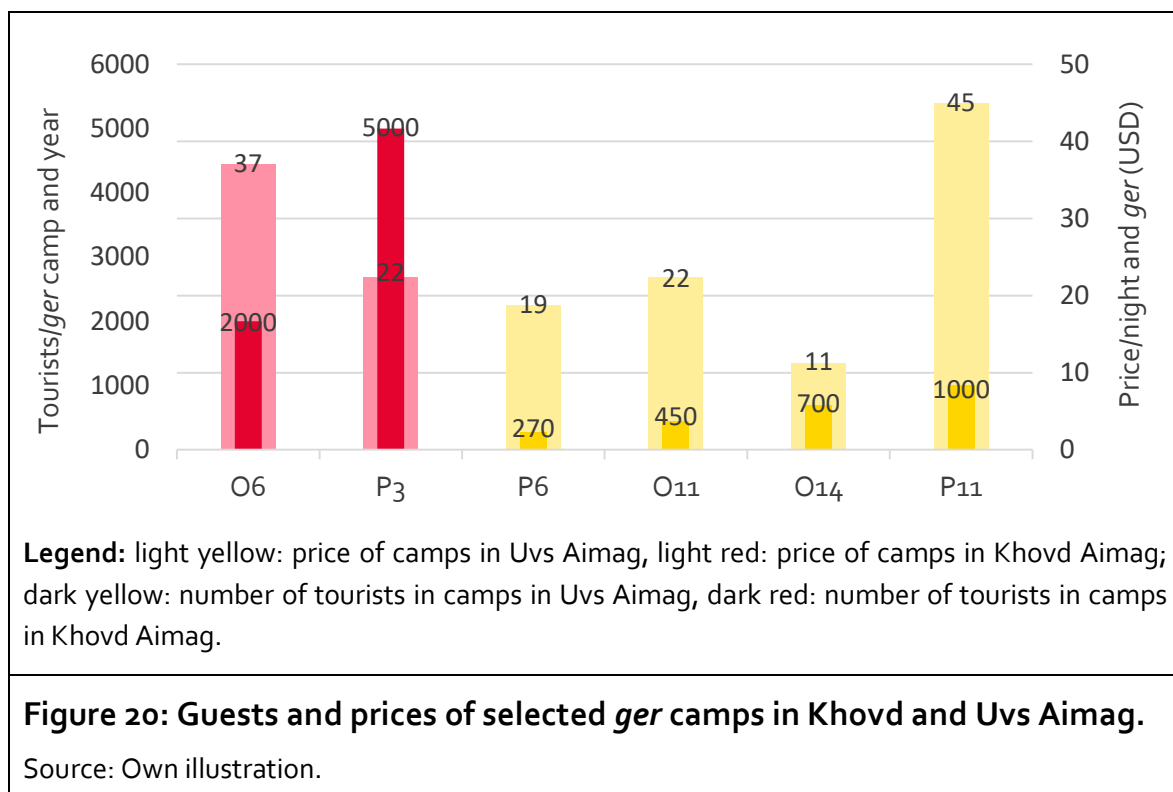
### 7.3.2 Accommodation and gastronomy facilities and capacities

Hotels, resorts, *ger* camps and spas are common accommodation facilities in Mongolia (JICA, 1999). The accommodation capacity in Mongolia was 72.648 beds (2018) (MoET, 2018). 842 accommodation facilities are in Ulaanbaatar, while only slightly more (1.214) facilities are spread over the 21 Aimags. The facilities in Ulaanbaatar include hotels with large capacities, while the facilities in the Aimags are smaller entities. Nevertheless, this already indicates the limited accommodation capacity in the countryside. In Mongolia, Hotels and Motels make over 40 % of the total accommodations, the remaining 60 % are *ger* camps, tourist camps and (spa) resorts (MoET, 2018). In Khovd Aimag, the total accommodation capacity is 724 beds (Figure 19), of which slightly over the half are located in Hotels (56 %), about one third in *ger* camps (34 %) and 10 % in spa resorts. Since 2010, the number of beds has doubled in Khovd. In Uvs Aimag, the available beds have increased six-fold from 2009 to 2019.



Throughout Mongolia, the first *ger* camps were established in the 1950s and since the beginning of the Millennium the number of camps is steadily increasing (Dorjusuren, 2009). "People [are] very much keen to do tourism business (...) tourist camps and other facilities had mushroomed" (Gantemur, 2012, p.54). In 1998, 50 camps (JICA, 1999), in 2008 220 camps (Dorjusuren, 2009) and by 2018, 306 camps were established (MoET, 2018). Most of the *ger* camps are run privately. More recently some community-run *ger* camps have been established, with support of donor organisations.

*Ger* camps are attractive among domestic tourists (Dorjusuren, 2009). Owners and managers of both CBT and commercially run camps indicated that 80 % and 95 % of all guests are domestic (O14, P6, P3, O11), with one exception of P4, where only 30 % of the tourists were domestic (this camp specifically targets international tourists (P4)). The prices of the assessed camps reach from USD 11 to 45 (per *ger* and night, cf. Figure 20). These prices are low, as one *ger* usually hosts between four to six people. The visitor numbers of the assessed camps range from 270 visitors (P6) to 5.000 visitors (P3) a year. Some domestic tourists also prefer to stay in private *gers*, which they rent locally (I14). Some international and national travellers also prefer to stay in tents (T7, T9, T10). Camping is allowed almost everywhere and is free of charge (P8; Wigsten, 2005).



The seating capacity for food services (e.g. in restaurants) in Uvs Aimag have increased from 670 to 3.000 seats between 2009 and 2018 (DET Khovd Aimag, 2019; DET Uvs Aimag, 2019). Most of the restaurants are located in the Aimag centres, near tourism attractions or in Soum centres, gastronomy services are oftentimes lacking, and the quality is not according to the standards of international tourists (Wigsten, 2005). Other services related to tourism are producing and selling handicrafts, offering translation, transportation and guiding services (JICA, 1999).

### **7.3.3 Revenue from tourism**

In Mongolia “the direct contribution of Travel and Tourism to GDP was 804.8 billion MNT (USD 330.5 million), 3.1 % of total GDP in 2017” (WTTC, 2018, 1). In Khovd Aimag the total revenue generated from tourism is about 80-100 million MNT (ca. USD 30.000-37.000) (DET Khovd Aimag, 2019). However, these numbers might be misleading, as the specialist from the Department of Environment and Tourism (DET) in Khovd stated: “*unfortunately, our tourist companies never give true information of revenue*” (G20). One *ger* camp owner indicated the total income from the camp in one summer is 3 million MNT (ca. USD 1.100) (O11). Comparable numbers for Uvs Aimag are missing.

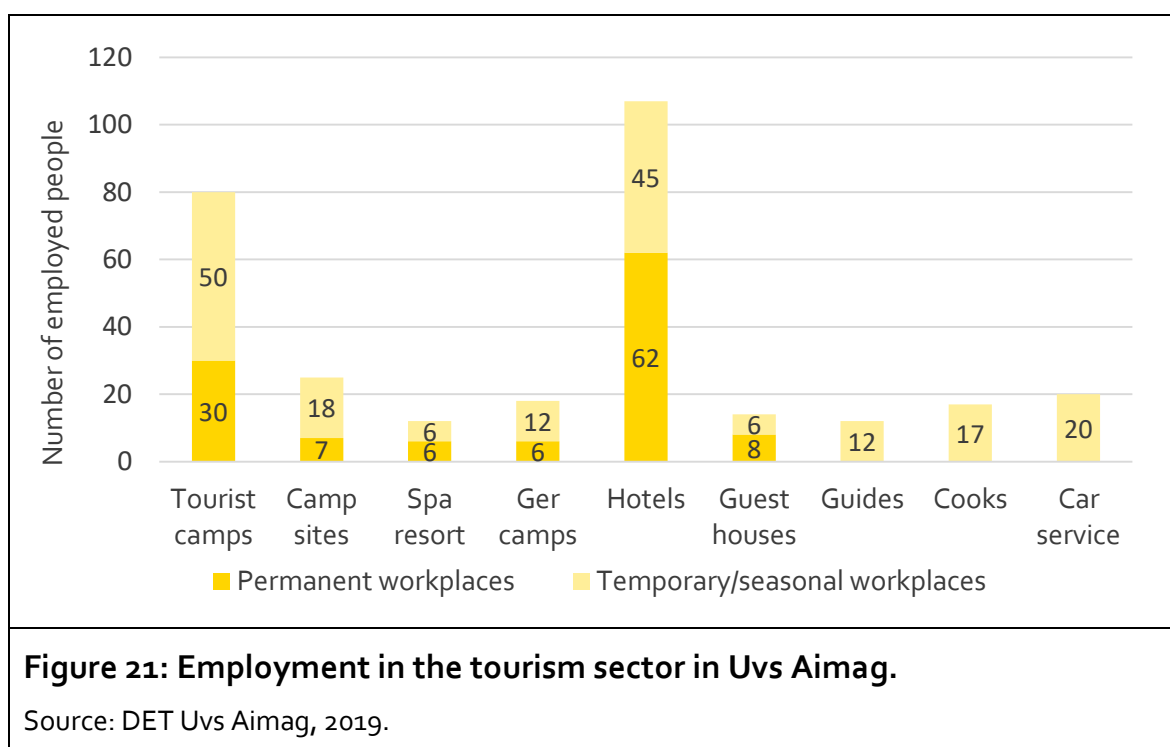
In Mongolia, spending on leisure tourism accounted for 77.1 % and business tourism for the remaining 22.9 % of the total travel and tourism contribution to GDP (2017) (WTTC, 2018, p.6). According to an estimate from UNCTAD 2012, business tourists spend 1.6 times more than leisure tourists. A survey by the DET of Khovd Aimag (2013) assessed that visitors spent about 200.000 MNT (ca. USD 82) per trip (G20). The specialist stressed that the numbers have increased since then (G20), but current figures are missing for both Khovd and Uvs Aimag. The organisation of travel in Mongolia influences the revenue streams: even though numbers are not available, Nault and Stapleton (2011, 706) show at the case of Bayan-Ulgii that the main revenue stay with tour companies from Ulaanbaatar. In Khovd and Uvs Aimag this revenue share is assumed to be similar (I1, I11), as one interview partner pointed out: “*The tour operators get a big share of the pie*” (I11).

### **7.3.4 Employment in the tourism sector**

Since 2015 the government has tried to generate more jobs in the tourism sector, setting an ambitious goal to double the 50.000 (2015) jobs in the tourism sector to 97.000 by 2020 (MoET, 2014). In 2018, 58.000 people were working in the sector (MoET, 2018), accounting to 4.9 % of the labour force (ibid.). In Uvs Aimag,



the sector employs 119 permanent and 186 seasonal staff (see Figure 21). In Khovd Aimag, 160 permanent jobs are registered and an unquantified number of seasonal jobs complement the sector's employment (G20). The number of seasonal jobs remains unclear, as a monitoring system is missing (ibid.). Due to informal business and employment relations in tourism, are sometimes established only on a daily or weekly basis (e.g. for horse riding), the numbers of revenue streams and job generation are not comprehensive (ibid.). Though, according to a governmental official, the increase in tourist arrivals did not result in an equal increase in jobs (ibid.). Informal and occasional jobs remain a common practice and leads to precarious working conditions, without legal and social security.



The average salary in the tourism sector ranges between 350.000 and 400.000 MNT (ca. USD 130-150) per month (DET Uvs Aimag, 2019). Service staff in hotels, restaurants, and *ger* camps receive about 350.000 MNT (ca. USD 130) per month (A8, P6, P11). An owner of a high standard camp pays the chef about 2 million MNT (ca. USD 750) monthly, as the quality of the cuisine is important to him (P11). Despite such exceptions, the service salaries are low, compared to officials like park rangers or construction workers who can earn 700.000 MNT (ca. USD 260) and 1.2 million MNT/month (ca. USD 450), respectively (A8). The salaries for local jobs in the tourism sector are not compatible with the salary expectations of young people; one interviewee declared that young people ask for

two million/MNT/month (ca. USD 750) (O3). The seasonality of jobs in the tourism sector means most jobs can only be seen as a complementary income source (A8).

Common jobs in the tourism sector are service and management positions in accommodation facilities such as *ger* camps, hotels, or as tourist guides, cooks or drivers (JICA, 1999). In terms of gender, there is a great difference between “male” and “female” jobs:

*„While tour operators’ office workers and hotel employees are mostly women, (...) jobs as drivers and guides with tour operators are almost exclusively performed by men – forming the majority of employment in this sub-sector.”* (UNCTAD, 2012, p.9f)

In Khovd and Uvs Aimag, a similar pattern was described by interviewees (L24, P6): tourist guides are indicated to be mostly male (P6) and businesses are mostly started by men (L24). A female *ger* camp owner emphasised: “*Ger camp owners are rather men. I am an exception.*” (P6). Currently, women in the tourism sector are more likely to work in service jobs (e.g. cleaning) or in souvenir making (P6, O8, G5). According to the women's association in Ulaangom, Uvs Aimag, job opportunities for women in the tourism sector could also be as tour guides or translators (O8). In terms of youth employment, several interview partners mentioned that tourism could be an attractive job opportunity for young people (P10, O11, O6). Despite this, the seasonality, mismatch of salaries and the expected salary needs to be addressed.

Tourism can empower certain members of a host community, not only by economic means, but also by tackling structural inequalities. If job creation is target group specific, e.g. by providing tourism jobs to women, involvement in the tourism industry may provide newly found or strengthened agency, autonomy and authority, all of which support overcoming gender-based inequalities. In this regard, however, it is critical to consider the balance between productive and reproductive work of women. Equal attention should be given to providing income opportunities to different community members as well as to understanding how different members are affected by them (Cole, 2018; UNWTO, 2004).

## **7.4 Institutions, policies and strategies**

### **7.4.1 Governmental perspective**

Mongolia’s Sustainable Development Plan 2030 aims to develop tourism as the third pillar of the national economy, with the goal to diversify the country's in-

come (G35). The government has set high expectations in the development of the tourism industry. By 2025 one million international tourists are likely visit Mongolia annually (Strasdas, 2017, p.6). Compared to that, in 2015, only 386.204 tourists have visited Mongolia (MoET, 2014). The MoET sets out policies related to tourism and is responsible for the monitoring and coordination of tourism activities on the national and international level (G35).

At present the country has not articulated a formal national tourism strategy (G35)<sup>8</sup>. However, the Tourism Law of Mongolia (GoM, 2000) regulates relations between different stakeholders in the tourism sector and defines the main policies issues. The government efforts focus on infrastructure improvement: mainly airports and roads), community-based tourism development, human resource development, implementation of a monitoring system for the tourism industry, marketing and the promotion of remote “exotic” regions, such as the Uvs Nuur destination (Strasdas, 2017, 6). In autumn 2019, the revised law was passed and has set a stronger focus on sustainable tourism and regional tourism (G35). Less visited regions, like Khovd and Uvs Aimag, should be better connected through infrastructure development (ibid.). Income generation for local people, as well as diminishing the seasonal dependence, are two other concerns of the MoET (G34, G35). Under the improved law, more resources are allocated to the Department of Tourism Policy Coordination. Despite that fact, in 2019 only seven people were working in this Department in Ulaanbaatar (ibid.).

On Aimag level, the DET is responsible for the implementation of the policies, defined by the MoET (G26). Within PAs, the Protected Area Management Department (PAMD) and Protected Area Administration (PAA) are responsible for tourism management (G34, G35). In Khovd Aimag a tourism programme was formulated in 2017 (G4, G5). The goal of the programme is: “to develop sustainable, environmentally friendly and community-based tourism in Khovd Aimag and to make tourism one of the contributive sectors to local economic development” (UBTA, 2017). In Uvs, the Green Development Plan (HDRTC, 2019) includes a chapter on tourism development. According to the government in Uvs Aimag, tourism is an important sector to develop: “*Uvs Aimag does not aim to develop the mining sector, thus tourism sector development and CBT is very important*” (G26). In the phase 1 (2019-2023) of the tourism program, tourism zones should be defined and “their unique and environmentally friendly products and services [should be promoted].” (HDRTC, 2019). In phase 2 (2024-2028), tourism products will be de-

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8 Although, JICA developed a tourism master plan for Mongolia in 1999.

veloped and the income, as well as tourist numbers should be increased threefold (ibid.).

In Mongolia, many governmental technical officials are politically appointed, and the officials of some positions change often within the 4-year election period, especially after the election of a new government (Strasdas, 2017; G35, P1). The political appointment affects the consistency and professionalism of the government (Strasdas, 2017; G35, P1). The frequent rotation of public sector counterparts represents an obstacle for the private sector (P1). The collaboration between different governmental departments and levels is also negatively affected by the rotation of officials (G35).

#### **7.4.2 Tourism associations and donors**

Member-based associations such as the Mongolian Tourism Association (MTA, 2019) and Sustainable Tourism Development Center in Ulaanbaatar (STDC, 2019) represent Mongolia in large international fairs such as the International Tourism Fair (ITB) in Berlin. The Ulaanbaatar Tourism Association (UBTA, 2019) organises the domestic tourism fair in Ulaanbaatar and represents the country at fairs abroad (e.g. International Travel Expo Hong Kong) (P9). The UBTA is not member-based and offers tourism consulting and training programs. For example, experts from the UBTA supported the Aimag government in Khovd to develop a tourism programme and management plans. One interviewee criticised the fact that member-based associations mainly represent the private tourism sector and they are not concerned about community involvement in the sector: *"Their focus is not on the needs of local communities. They rather lobby the government for regulations that benefit them"* (P9). The domestic tourism fair is organised by the STDC in Ulaanbaatar. In Khovd and Uvs Aimag both recently established a tourism association (HDRTC, 2019; O2, G34). In Khovd Aimag, the association is operated by private sector actors (O2), whereas in Uvs Aimag, private and public entities are represented in the board (G34). Both associations expressed to have limited activities at the time of fieldwork and indicated that they do not work together on a regional level (O2, G34, I10).

Development and donor organisations contribute different programs and projects to the tourism sector. Since the 1990s donor involvement in tourism has focussed on CBTs and sustainable tourism (Wurts, 2013). Projects include infrastructure development and the establishment of CBT groups, capacity building and provision of loans to start or further professionalise tourism businesses (ADB, 2019; Wurts, 2013).

## 7.5 Nature conservation and tourism development

*Tourism management* is especially relevant in PAs (see Smith, 2013; Strasdas, 2017) where uncontrolled and regulated tourism can do great harm. An environmental inspector in Chandmani Soum stressed: “*There should be limited access for tourists, especially for the special protected area*” (G15). A monitoring system is a baseline instrument for a tourism management plan. At the moment there is no monitoring of tourism activities in PAs in the study sites (I7; Strasdas, 2017; HDRTC, 2019), and it remains unclear, how many tourists visit the area and to which extent tourism impacts the PAs (ibid.). Direct management measures entail the establishment of routes (see Meyer, 2004) zoning, seasonal restrictions, tourist quotas, regulations to only enter PAs with a guide or to stay on designated trails (Leung et al., 2018, Strasdas, 2017). Zoning concentrates tourism activities into a certain area, which simplifies planning and monitoring of tourism activities. In terms of infrastructure (e.g. toilet facilities and waste collection), zoning is beneficial, as the facilities can be established directly to the defined zone and do not have to cover the whole PA. Zoning can also be used to avoid tourism activities in vulnerable sites (G35; Strasdas, 2017; Wigsten, 2005). Indirect measures include visitor information, marketing of less popular areas and charging of higher fees for popular places in order to manage visits (Leung et al., 2018; Strasdas, 2017). Building trails, urging visitors to remain on track and hiring a guide (without obligation) also proved to be effective measures of visitor management in PAs (Leung et al., 2018; Smith, 2013; Strasdas, 2017). By using these measures, “tourism and recreation can help to maintain the environment rather than damage it” (Smith 2013).

The concept of carrying capacity is used to calculate the maximum number of tourists that can visit a site or a community without impacting it negatively. To prevent negative social effects, the capacity of host communities is assessed. Regarding environmental aspects, the concept is mainly applied to vulnerable contexts where, pressure on natural resources and habitats is taken into account and a maximum capacity of a site is calculated respectively (Balaš & Strasdas, 2019; Marsiglio, 2017; UNWTO, 2013).

In Khovd and Uvs Aimag, the carrying capacity for tourism has not been assessed comprehensively (G27, G30, G5). The implementation of the environmental carrying capacity concept can be very costly, as basic environmental data is required (e.g. animal migration patterns, water quality of lakes etc.). This fact restricts the implementation of the concept to all PAs in Khovd and Uvs Aimag. Thus, in areas with a high environmental pressure (e.g. at the shores of lakes near

main roads) or for especially vulnerable sites (historical sites or habitats of rare animals) the approach could be fruitful.

### **7.5.1 Protected areas and regulations**

The Mongolian government has committed to designate 30 % of Mongolia's territory as State Special Protected Area (SPA) by 2030 (MoET & UNECE, 2018; Upton, 2010, p.307). In 1996, the PAs covered 8 % and 17.8 % in 2018 of the total national territory (MNE, 1996; MoET & UNECE, 2018). Khovd and Uvs Aimag are part of the Altai Sayan Ecoregion which was identified as one of the most unique 200 ecoregions globally (Olson & Dinerstein, 1998). In the year 2019, 31.3 % of the territory of Khovd Aimag and 20.6 % of Uvs Aimag is classified as SPA. Along with the buffer zones, roughly 40 % of the Aimags' territories are under protection. In Uvs Aimag, the creation of a new SPA is planned (G29). The current PAs of Uvs and Khvod Aimag<sup>9</sup> are illustrated in Figure 22.

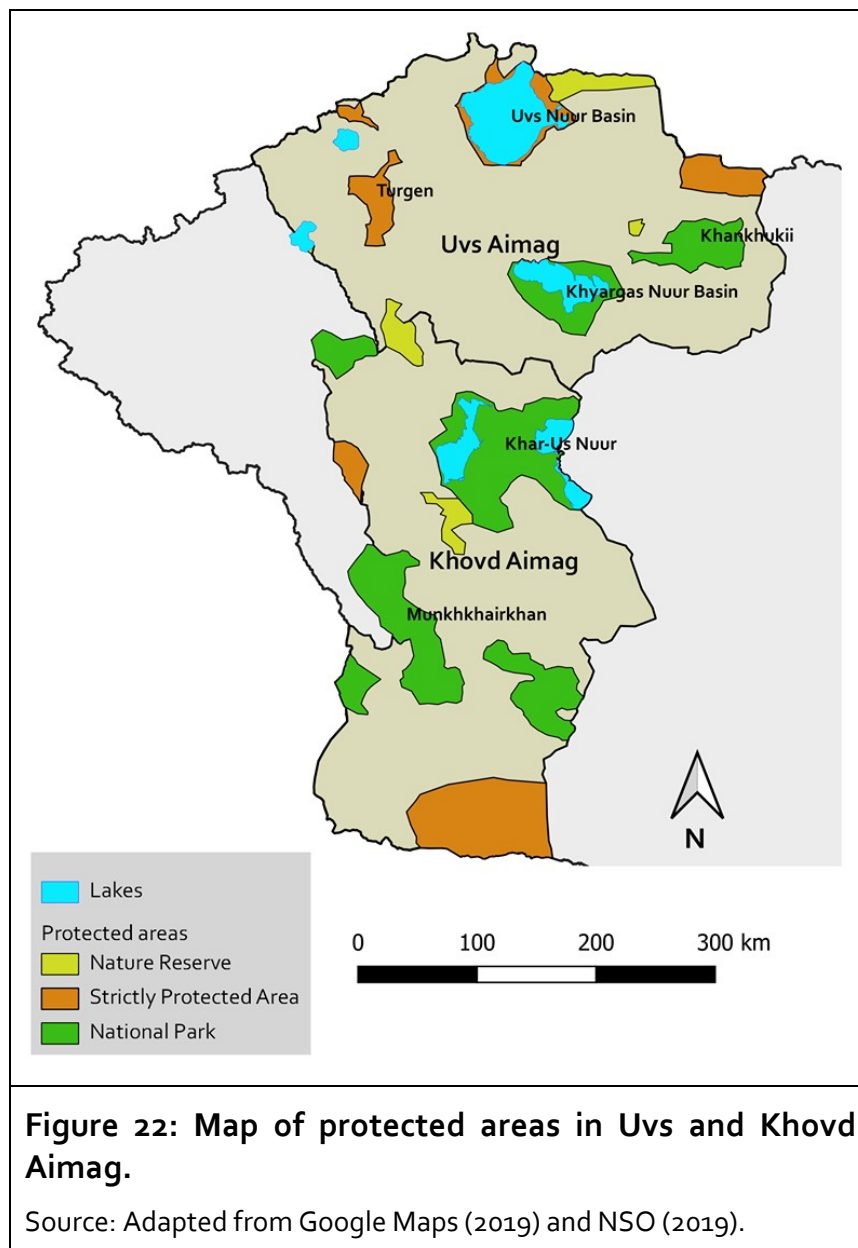
Mongolia has four different PA categories (Strictly Protected Areas, National parks, Nature reserves and Monuments) with different zoning (or types) (see GoM, 1994). The regulations regarding tourism in these areas are summarised in the Annex 8<sup>10</sup>. Generally, tourism activities can be undertaken in limited use zones of SPAs, National Parks and in travel and tourism zones of National Parks, as well as in Natural Reserves (Buckley et al., 2008). One purpose of buffer zones is to reduce pressure on the grassland in PAs, to secure local livelihoods and integrate communities in natural resource management (GoM, 1997). Since 2009, Mongolia has had a strategy to include communities in natural resource management (Upton, 2010). According to Upton (ibid.), little is put into practice and local knowledge is rarely included in the PA management. In the earlier years and today, donor organisations support community-based groups that manage a certain area in both Khovd and Uvs Aimag (O4, O6, I6, I7). Some groups were perceived as successful in terms of nature conservation by supporting the PA administration in reporting illegal activities or by awareness raising, decline in illegal hunting

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9 PAs in Khovd Aimag: Khukh Serkh SPA, Bulgan River Nature Reserve, Mankhan Nature Reserve, Altan khukhii Natural Reserve, Great Gobi SPA – B part, Tsambagarav NP, Myangan Ugalzat NP, Khar-Us Lake NP, Munkhkhairkhan NP (UBTA, 2017). PAs in Uvs Aimag: Khyargas Nuur NP, Turgen SPA, Uvs Nuur Basin SPA, Tsagaan-shuvuut SPA, Altan-els SPA, Khankhukii NP, Altan khukhii Natural Reserve, Bulgan khangai uul Nature Reserve, Tesiin gol orchmin gazar nutag Nature Reserves (UNEP-WCMC, 2019).

10 For a detailed description of the regulations consult the Law on Special Protected Areas Mongolia (GoM, 1994) and the Law on Special Protected Area Buffer Zones (1997). For an evaluation of these laws see IUCN (n.d.).

(HDRTC, 2019; G5, G15): "Those groups are very helpful for nature conservation for both herders and inspectors because the area is huge" (G15).



### 7.5.2 Financing protected areas

With a few exceptions, Mongolian PAs are managed by the government and are generally underfinanced (I13; Stradas, 2017). This is manifested, for example, by the limited number of staff. On average, only one park ranger is responsible for a wide territory, in some cases up to 107,100 ha (Jargal, 2017, p.51), which makes it difficult to control the PAs properly (G27).

As can be seen in Textbox 5, Tourism is listed as one source of income for PAs (GoM, 1994), but no explicit development strategy is mentioned (IUCN, n.d.). So far, the revenue from tourism is restricted to park entrance fees. These are centrally set at a fixed price for Mongolians 300 MNT (USD 0.1) and for international visitors 3.000 MNT (USD 1.1) (P1). In international comparison, the admission fees are very low (Strasdas, 2017). For example, in the Khar Us Nuur National Park, the revenue from entrance fees was in three of the last four years below the revenue from the poaching fines (DET Khovd Aimag, 2019). This is not only explained by low fees, but also by the limited control of the park visitors (G22), numbers of sold tickets could be misleading as they do not necessarily reflect the real number of PA visitors. As the central government collects the revenue from all the PAs, there is little incentive for PAs to increase their revenue from entrance fees (TRC Tourism, 2013; Wurts, 2013, p.1).

Participation of local population is organised through voluntary buffer zone councils<sup>11</sup> that should be financed by donations from international and national organisations, project revenue and fines (GoM, 1997). In practice, the councils are struggling to generate income, which adversely affects the council's activities (G11, G15).

**Textbox 5: Pillars of the PA budget.**

- State and local government budget investment
- Income from tourism and other activities and services
- Donations and aid from citizens and economic entities
- Income from compensation for damage caused in violation of the Law on Special Protected Areas and its regulations

Source: Article 6. Law on Special Protected Areas Mongolia (GoM, 1994).

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<sup>11</sup> The buffer zone council supports the management of the buffer zone. It is composed of representatives from Soum citizen representatives, local citizens, protected area administration and optionally NGO representatives.



## 7.6 Local livelihoods, protected areas and tourism

In the study area, the existence of PAs was perceived positively by herders (L10, L27, L29, O4). The most common reasons given were that, firstly, PAs can prevent negative impacts of mining on herding, such as a loss of grazing grounds and the displacement of herders (G3; Laurie et al., 2010; Wurts, 2013). Secondly, PAs are relevant for nature protection and awareness raising (Leung et al., 2018), as a group of young people from Munkhkhairkhan Soum underlined: “*PAs do not only protect this land; they also disseminate the knowledge about protection and garbage to the tourist*” (L10). Thirdly, the interference of the implemented park regulations with herding practices is low. In times of unfavourable climatic conditions such as *dzuds*, herders are allowed to extend the pasture land into PAs (Ykhanbai et al., 2014). In Chandmani Soum, different interviewed herders confirmed that winter camps are within the SPAs, which is not legal but tolerated (G15).

*“These herders have nowhere else to go. By law herders are staying in the area illegally. For 2-3 months during winter they are unofficially permitted to stay in the area as long as they adhere to the rules.” (G17)*

The outcome of this rather lax protection practice has been reported as a challenge in PAs in the study area (G11; Schuerholz et al., 2007). Entering of herders in core zones was described as a pressing issue and the grazing carrying capacity was exceeded more than twice in eight out of 16 assessed PAs (Schuerholz et al., 2007).

### Spiritual beliefs and tourism

In contemporary Mongolia, *spiritual beliefs and practices* remerged after the government attempted to eradicate spirituality during the socialist period (Upton, 2010). Integrating local knowledge in conservation practices has gained popularity around the globe (see Borrini-Feyerabend et al., 2013; Klubnikin et al., 2000; Upton, 2010). Rights-based conservation puts an emphasis on the connection between conservation and human rights (see Blomley & Walters, 2019). This includes the recognition of traditional knowledge and customary resource regulations in conservation efforts (Blomley & Walters, 2019). Based on this understanding, the government recognises the need of integrating traditional knowledge in conservation and incorporated it into goals and objectives of laws and programs (MNET et al., 2009). Despite the official recognition of traditional knowledge as a management instrument, few attempts to link spiritual beliefs and conservation are implemented in practice (Upton, 2010). In the study area, different traditional

practices and taboos related to nature conservation were mentioned. In Munkhkhairkhan Soum, the head of a community group stressed: *"herders of this Soum do not poach, as it is a taboo and brings bad luck."* (O4). Another woman explained: *"There is a lake, where people must not catch fish there. One foreign tourist caught a fish and died on his way back home"* (L12). At the Khyargas Nuur, a tourist camp owner mentioned using traditional beliefs for environmental awareness raising (P8).

The *interference of tourism with sacred sites* is perceived as a threat by the local population. In Mongolia, some mountains are seen as especially holy (I14) which is why local people raised concerns about mountaineers:

*"We do not like if foreigners climb the mountain. Even when Mongolians climb it, the mountain gets angry and it will snow. Of course, when the weather is bad, the animals and the herders will suffer."* (L12)

Similar concerns were mentioned in Chandmani (G15). For instance, at the Uurug Lake, one ranger said that the PA helps to prevent people from going to the sacred mountains (O11). The Soum government in Khovd Aimag believed that if tourism is managed by communities, such interferences could be prevented (G20).

## 7.7 Opportunities and challenges for the local population to benefit from (community-based) tourism

For local residents to benefit from tourism and to diversify their livelihoods in Khovd and Uvs Aimag, it is crucial to assess the prevailing situation and weigh the prospects and risks. Therefore, opportunities and challenges for the local population are discussed.

### Seasonality

The short tourism season represents a significant problem for tourism development (G35, A8, L14). The peak season is in July and August, during the national summer school holidays. The off-season lasts from May until June and September until October. During summer time the temperatures can be very high and precipitation is low. In lower regions close to water sources like at the Khar Us Nuur National Park in Khovd Aimag, swarms of mosquitoes constrain the development of tourism during the peak season (L14; Wigsten, 2005).

In contrast to the four-season holiday camps from the socialist period, *ger* camps almost exclusively operate during the summer time. In this brief period,

there is a significant demand making the operation economically viable (Dorjsuren, 2009; O6). Dependent on the location and type of accommodation, only few facilities operate throughout the year (O14, P8). Russian tourists that arrived during the winter increased over the last years (A8). However, the occupancy rate remains low (Wigsten, 2005). During winter time at Khyargas Lake high snowfall and very low temperatures there might yield the potential to develop activities like ice fishing and winter sports (P8, G35). But as a study revealed, prospects for winter-based skiing tourism are very limited (Wigsten, 2005, p.4).

### Infrastructure

The provinces are rich in natural and cultural tourist attractions but still lack basic tourism infrastructure (G35) and require further investments (I12), especially in rural areas where appropriate accommodation, restaurants, roads, communication and internet services are still poorly developed (Wigsten, 2005).

The *poor accessibility* currently restricts the arrival of visitors to the Western Aimags (Nault and Stapleton, 2011). Additionally, it takes a long time to reach destinations within the region (G13, G35). The Khar Us Nuur is an important national park (L3), but the remote location confines tourism development (Wigsten, 2005). Also, the remoteness of Munkhkhairkhan Soum limits the possibilities for further development of the sector. One herder group in Munkhkhairkhan Soum is willing to host tourists but received only two visitors in 2018 (O4).

Ulaanbaatar is the most important gateway for receiving international tourists. Regarding *flight connections*, the capacity for domestic flights is relatively low, ticket prices are relatively high and the schedule is perceived as unreliable with long delays (P10, T6), mostly caused by unstable weather conditions. Six provincial airports were recently upgraded to international airports, including Khovd and Ulaangom airport, to increase the capacity to transport foreign tourists (G35). International airlines are thus likely to be attracted to offer direct flights to the provinces from neighbouring countries. One governmental official expected a decrease of ticket prices and an increase in visitors:

*"The number of tourists from Russia and Kazakhstan in autumn and spring is likely to increase. Even in winter time, because the cold is not a problem, they are familiar with colder temperatures."* (G35)

*Road infrastructure* is important for tourism development. For instance, Mongolia's largest fresh water Lake Khovsgol experienced an increase of tourists by 360 % after the road connecting Ulaanbaatar with the lake was completed (G35). Although the distance to the Western Aimags is greater, a similar trend of increas-

ing tourist arrivals has already been noticed since the road connecting Ulaangom with the capital was paved completely in 2016 (HDRTC, 2019) and significantly more people based in Ulaanbaatar have since visited Khyargas Nuur (P8). In 2013, road construction between Ulaangom and Khyargas Nuur (100 km) was completed which made trips within the region simpler. A paved road between Khovd and Ulaangom (163 km) was planned to be completed by 2015 but the project is still pending. This project would be essential for further development of the tourism sector in both provinces. In general, a main problem is the difficulty in maintaining the existing road network due the harsh winters and damage caused by heavy freight transport (Ministry of Road and Transport, 2013). In Munkhkhaikhan Soum, potential to develop tourism and thus create income is restricted by the lack of road infrastructure, as various young people deplored: *"There are not enough possibilities to develop this Soum due to the remoteness of this area. The road is very bad, it is not even paved"* (L10). Regarding visitor guidance to touristic attractions, information systems and road signs are commonly missing (G26).

In terms of *accommodation*, some interview partners stated that the hotels in the study site have a low standard in service, capacity and comfort (G26, T6, I14). As argued by Wigsten (2005), the inadequate standard of facilities in Khovd is restricting the possibility to "develop the surrounding areas to its full potential". The existing *ger* camps offer a cheap and seasonal solution with low quality standards. *Ger* camps are favoured as accommodation by the Khovd and Uvs provincial government, as they indicated in two interviews: *"The sector needs to improve its quality. More camps should be developed"* (G26), *"a main goal in the tourism strategy is to introduce mobile ger camps"* (G5). The demand of wealthy international tourists for homestays is rather limited, argued one tour operator (P1). Since 1998, there is a trend that small-scale businessmen are keen to have real estate to protect against potential future risks. Hence, complexes are built in unspoiled areas including fences and cement camps (Gantemur, 2012). One camp manager wants to reinvest any surpluses in mattresses which urgently need to be replaced to enhance comfort (O11).

The Uvs Development Plan states that the *inter-Soum infrastructure* is weak, local supplies are limited. For instance, the distribution of potable water and energy is generally poor (HDRTC, 2019) and tourist facilities are dependent to transport potable water (P8). It is therefore important to enhance travellers' convenience.

*Internet and mobile coverage* in rural areas has rapidly increased over the last years (UNDP, 2016), however, some remote areas only receive weak reception significantly limiting communication and access to information (T7, T10).

### **Reliability**

For the local population to profit from tourism, the reliability of tourists is important. More precisely, short-term cancellations pose a major problem in tourism management, as one group explained: *"Booking cancellations are difficult for us because we already moved the households and organised everything which is a lot of work"* (O14). Another head of a herder group in the remote location of Munkhkhairkhan mountain affirmed: *"Last year a group of six tourists were supposed to come, but one was sick and they cancelled the trip"* (O4). As the herder group only received two other tourists in that year, the cancellation made a big difference. Due to informal agreements with tourists, the providers often do not receive any compensation in case of cancellations.

### **Mobility**

Based on the mobile lifestyle, herder's involvement in tourism activities can interfere with the reliability of hosting (HDRTC, 2019; UBTA 2017). If herder households are forced to relocate between the time of booking and actual visits there might be a risk that they cannot receive tourists or could only receive them at a different location (I1, I10). Activities related to the livestock might also present difficulties, e.g. when horses are at distant pastures and not available for horse riding (O6).

### **Motivation**

The main motivation of the local population related to tourism is to *increase their income* (I7, L14, O4). One group explained that herders only generate income from livestock husbandry, thus tourism can help them to diversify their income sources (O11). Another community group stated that the last two winters were very hard and many members lost livestock. With additional income, they would be better off and able to pay the fees for school and university (O5). In CBT revenues are not attributed to single individuals but benefit multiple families (I6, O6). Local authorities stated that members of one CBT *"already have more money than they ever had before"* (G13). A private *ger* camp confirmed an increase of income since being involved in tourism (O11). Collective benefits are oftentimes paid into a community fund which is then used for the development of community assets (Goodwin & Santilli, 2009).

In terms of *regional economic development*, the growth of tourism in the province is seen positively because more local products could be sold which “*would help the region with the generation of additional income*” (L3). Depending on the arrangement, less wealthy herders can profit from the tourism business through the sale of food supplies (L6). The WWF in Khovd Aimag proposes that “*maybe less wealthy people should not be the ones building up camps but rather provide services. They are also good guides*” (I7). Regarding government policies in tourism development and especially in CBT development, there is a need for a long-term approach, with the objective to establish a well-functioning regional network of multiple camps with higher quality standards in services and products.

With regards to *nature conservation* the head of one community-based conservation group explained that they clean the valley and collect trash left behind by tourists (O5). Another group’s interest to be involved in tourism was to “*protect the nature to pass it to the next generations*” (O4).

The possibility to *improve English skills* is another reason why local residents and especially young people want to host foreigners or to be engaged in tourism activities (P10, L30). Nevertheless, the language barrier is a main limiting factor to develop tourism (I14). Other residents claimed that hosting tourists brings them satisfaction: “*Their gratitude makes me happy*” (P6). Young students mentioned that the labour force to potentially work in translation is low (L30).

However, motivation can also be based on *false hopes and unrealistic expectations* which the following comment illustrates: “*Tourism is a good sector, it could be as fruitful like digging gold*” (O21). Income diversification can positively contribute to the household budget, but does not necessarily lead to an increased level of prosperity.

### **Group formation and collective action**

To strengthen social networks, *group formation and collective action* have been the focus of national rural development and conservation programmes over the past decade to improve natural resource management and reduce poverty as described at length by Upton (2008). Various community-based groups, such as pastoral user groups and community-based resource management groups persist in the study sites and have been working well for a long time (G13). TNC and WWF explained that the initial group formation process to build networks was challenging as the herders were not aware of their opportunities and lacked skills to run business operations (I6, I7). Training and information about the legal environment were offered and herders started to apply for partnerships with the NGOs to de-

velop tourist camps (I14). Although the groups supported by TNC are managing the camps independently by now, they will be supported for another two years to stabilise the business operations and promote independence for long-lasting durability (I6).

Some of the interviewed herder households prefer to *cooperate* instead of working individually to improve their livelihoods together (O4). This enables them to have access to camels, horses and human resources in times when they lack their own (O11). As mentioned by the Women's Association, working in groups is more effective as the workload can be distributed. Moreover, *"it is easier to generate income in groups than working individually"* (O8). With regards to work allocation, one CBT member explained that they work in shifts. In turn, some members are involved in tourism while others take care of the livestock (O7, G5). There are generally mixed groups, but the service staff is predominantly female whereas the decisions power mostly lies with men (O8).

Despite success stories, *challenges with cooperation* are manifold. One tour operator said there might be a misconception about collective work: *"People often assume that if they work together, they could make quick money. Unfortunately, it does not work like that"* (P9). WWF experienced that the initial group formation was problematic for six reasons: 1) herders are busy throughout the year, 2) people did not believe that cooperatives can be successful, 3) people were unwilling to contribute financially, 4) herders were lacking knowledge about cooperatives and their advantages in general, 5) there was a lack of trust due to bad experience with cooperatives in the socialist period, and 6) there were challenges in capacity building for cooperatives heads on legal issues and transparency (I7). However, the issue of trust is less important, if approached from the right angle and common interests are identified. Moreover, there are cases citing tensions between herder groups (O5, O7). Associations among herders with a lot of livestock are very much disliked by households with small herds who feel disadvantaged and deplore the increasing pressure on natural resources (I7). Incidents like this and other difficulties within communities are well documented in the literature:

*"Some CBT initiatives have also faced challenges of acceptance, leadership, motivation, management and equitable sharing within the community"* (UNWTO & SNV, 2019, p.75).

*Ignorance of advantages of cooperatives and bad experiences* were the most mentioned limiting factors to develop CBT. In Uvs Aimag, the DET provides training in collaboration with international donor projects in the tourism sector to emphasise benefits of cooperatives with moderate success: *"They [the local people]*

*want to run the business on household level, not as community. This is the main problem"* (G34).

As stated above, tourism is seen as the third pillar of the Mongolian economy and there shall be a strong focus on *CBT as a form of sustainable tourism* through community involvement (cf. Textboxes 6, 7 and 8). It is evident that community-based groups are interested to work in the sector, both Aimag governments strive to improve community participation, and private tour companies expressed interest to include local people in their activities (O4, I8, I11, P1, P10, G4, G34). Despite the discussed barriers, the willingness of the different stakeholders is a good foundation that improves the social sustainability of the sector. The strategy of CBT development is explicitly suitable to develop regional tourism by increasing people's income (G5, G35, G30). According to the local Sustainable Development Council, Uvs Aimag aims to develop CBT since 2008 due to the bright prospects and public interest: *"Around Uurug Lake are 30 environmental protection communities whereof ten are willing to be involved in tourism to guide, cook etc."* (G30).

It is important to learn about CBT development from other countries (I10), but these experiences should not be transferred to the Mongolian context without adaptation.

*"Developing CBT in Mongolia is special. In the countryside, it is difficult to gather people in a community group that is active in the tourism business, because they live far away from each other. Depending on the location and road, it can be successful."* (G35)

Another mentioned challenge was that *"communities want to have a stable number of tourists but there is no mechanism for communities to know how and when tourists will come"* (G30). These challenges are not unique to the Mongolian context:

*"A major problem with CBT initiatives has been difficulty in attracting visitors, owing to poor market research and not forming the offer around identified demand, poor locations that are hard to reach, lack of links to tour operators and weak marketing"* (UNWTO and SNV, 2019, p.75).

Unfavourable conditions for CBT to be successful and long-lasting can be traced back to the short project duration of donor agencies. Several years are needed to establish a functioning CBT (I14). Donor agencies should therefore consider a long-term approach in their programme design.



**Textbox 6: Tourism offers and community involvement – examples from the study sites: CBT founded with support of an NGO (O6).**

Durgun Khatan Camp in the PA at Durgun Lake in Chandmani Soum, Khovd Aimag, was established in 2018 with financial support and training by TNC. The NGO covered 80 % of the investment costs, the community paid the outstanding amount. Profit-sharing among the members differs according to their contributions to the initial investment. The members expect profit but cannot estimate the amount. The two involved community groups were established in March 2017 and all members are herder households. Prior to the tourist camp, they did not cooperate (G13). There are six paid positions for management and staff at the tourist camp during the season. Some employees (chef, guide) recently received training from the DET. The season runs from June to September. The group members work in shifts in the camp and take care of the livestock, rotating every second week. During the summer holiday, young people work in the camp. When school starts in September, older community members take over. At the time of the visit, the camp ran a total of twelve *gers* with a capacity to host 60 people at a time. Seven *gers* are provided by herder families, who receive one million MNT (ca. USD 374) per season. The other *gers*, donated by TNC, are more comfortable with higher rental prices (80.000 and 120.000 MNT or USD 30 and 37, respectively). The majority of visitors arrive individually as they are from neighbouring Soums, Aimags or from Ulaanbaatar. Only a few international tourists (40-50 people in 2019) are guided there by tour operators. On average, tourists stay one night. Other visitors pitch up their tents free of charge next to the tourist camp.

Main attractions are the lake and sand dunes in close proximity. Activities like horse-riding can be organised upon request. The camp offers cooked meals. They purchase dairy and meat products from the Soum centre, as the summer pasture of the community group is too far away in the mountains. In terms of eco-friendly tourism, the camp is operated by wind and solar energy. The camp is equipped with modern showers and flush toilets fed by water pumped from the lake. For preserving nature, signs were commissioned to inform about codes of conduct. With regards to improvements, the members want to enlarge the kitchen. They also wanted to sell hand-made handicrafts and flour made from a specific wild plant that grows in the sand dunes, but there are no facilities at the camp site yet. It was said that other local stakeholders and companies seek permission to establish camps at the lake (L14). According to them, the requests were denied by the government due to excess pressure on nature (O6, I6).

## Employment

*Job opportunities* within the sector are often characterised by unstable and seasonal employment, low wages and poor social security (Balaš & Strasdass, 2019). The short tourism season in Mongolia restricts constant business activities throughout the year (G9, A8, I11). Hence, the tourism sector merely offers occasional employment and therefore a low level of integration of the local population into the tourism sector (P6). Nevertheless, employment in the sector offers great development potential as pointed out by the Director General of the MoET:

*"Tourism can be a very inclusive sector not like the mining sector which has major adverse side effects. However, tourism can negatively affect the environment and therefore proper management is required."* (G35)

Furthermore, the NGO TNC and the founder of a tourism platform consider the employment promotion of young people in the tourism sector as a good way to counter youth migration (I6, P10).

The *fair distribution of income* generated from the sector is a central issue of concern regarding its economic sustainability (Raimundo, 2017). The World Tourism Organization therefore calls for ensuring:

*"viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation"* (UNWTO, 2013, p.18).

This includes retaining visitor spending locally and extending employment opportunities on a non-discriminatory basis.

In Western Mongolia there is a *lack of skilled workforce* in the sector. Knowledge about service culture, standards, environment, entrepreneurial businesses and hygiene among the tourism service providers is not sufficient (HDRTC, 2019).

*"The quality of nomad as tourism worker is relatively poor. Nor some nomads are working for tourist ger camps as ger cleaner or bed maker. Generally specialized workers, such as waiter, waitress, or cook, come from UB. In order to expand employment opportunities improvement in the worker quality is necessary"* (JICA, 1999).

Although the findings relate to a study conducted twenty years ago, similar conditions are recognised in Khovd and Uvs Aimag. No tour operators are based in either of the two provinces (L30). Tour operators based in Ulaanbaatar aimed to

“develop long-term partnerships with local communities and conservation initiatives” (360° Mongolia, 2019). For ecotours, private *ger* camps are provided for the tourists (P1). Although there is a trend to hire local support staff for cleaning and assisting (O8), more experienced people are recruited from Ulaanbaatar (P1). To employ local people training courses in business and hospitality is a prerequisite for creating employment and cooperation with enterprises, one tour operator argued (*ibid.*). This view is shared by IOM stating that tourists tend to bring their own meals, due to the inadequate service standard, restricting local value generation (I12).

The tourist peak season may result in relatively high staff utilisation and employees are hired depending on the need as well as their availability and skills (P6). One *ger* camp manager explained that the facility offers full time jobs to all family members: the husband is responsible for the management; his wife manages the cleaning and cooking, and the children assist, e.g. by fetching water. Another 14 people are employed in this camp as divers, guides, cleaners etc. and hired through acquaintances. The chef and translator are more experienced (P4). For local people interested in tourism, the peak season is considered suitable as children can support them in the household and the tourism services (G5). One camp offers work opportunities to students during the summer months and stated that the demand for these jobs is high (O6). The wife of one tourist *ger* camp manager pointed out that during high season she is very busy, because she prepares all the food for the tourists, cleans the *gers* and also takes care of the milking and dairy processing (O11).

In terms of *overlaps between herding and tourism*, one camp manager explained “*in summer, I focus on tourism while someone else takes care of my cows*” (P3). During the other times of the year, they are fully involved in herding and want to continue this because they are not content with their income. The wish to complement herding with tourism activities was mentioned several times (L14, O4, O7, O11).

Time and labour are significant *opportunity costs*, which communities contribute as an ongoing investment in CBT initiatives. Oftentimes it is not possible for members from herder households to engage in tourism activities due to a lack of time. Evidence shows that participation of the poorest community members is sharply restricted because these households cannot afford to be distracted from their subsistence activities (Goodwin & Santilli, 2009).

### Knowledge and skills

To profit from tourism, a certain *level of education and experience* is essential to understand and fulfil the tourists' needs. With regards to the rural exodus and migration to the urban areas, the level of education is a main obstacle. To counter the rural exodus, tourism was mentioned as a good strategy to prevent young people leaving the Western provinces (I6). Also, the preservation of the culture might help to halt the migration:

*"Sustainable tourism is a great opportunity for the young generation to make it more interesting for them, with their own traditions, so that they don't have to move out."* (P10)

*Education in tourism* in Khovd and Uvs Aimag is almost non-existent. According to the Khovd Development Strategy, students shall learn in secondary schools about environmental protection and eco-friendly lifestyles (UBTA, 2017). This will enable local communities to provide human resources for future tourism (ibid.). At Ulaangom technical college, there is only one class in tourism teaching basics in service and guiding. The students are mainly from neighbouring Soums. A teacher revealed that the students perceive studying as a non-stressful task, because they get a lot of information and experience different things (A8). Most of the students are female with only one or two male graduates in a class of approximately 17 students. The reason for this gender gap might be that boys prefer "*harder*" work such as carpeting or construction (ibid.). Having tourism as a subject is quite new (A8, G35). According to the United Nations Development Programme (UNDP) (2016), public funding on education is insufficient to finance new programmes and teacher training.

For higher education, one can study tourism management at the university in Ulaanbaatar or in Darkhan (L30, G35, A8). Some graduates struggle to find a job in the province because they are overqualified (A8). The brain-drain of young people with a university degree migrating to other cities or countries remains a problem (I12). Approximately half of the graduates move to Ulaanbaatar (A8). Consequently, human capital is missing in the countryside (G35). The majority of the graduates remaining in the province work in hotels or camps but these jobs are not full-time and not throughout the year (A8). Participants in a youth workshop complained that there is no bridge between the graduates and the job market (L30).

In 2019, the central government funded a five-day *training course in tourism* at the province level for more than 10.000 local residents interested or already working in the tourism business (G26, G35). In Khovd Aimag, 13 different training courses (guiding, driving, management, cooking, service staff etc.) were offered

and more than 216 people attended it (G20). In Uvs Aimag, ten courses were held with more than 200 attendees. Every participant received a training certificate proving their basic qualifications. Along with other people qualified in the tourism industry in each Aimag, the participants are registered with the labour department, which can be accessed by the private sector. Both central and provincial government were satisfied with the training and aim to repeat it (G35). Criticism was expressed that more people from herder groups should have participated in the training which will be addressed next time (G20). Further trainings in tourism are offered by NGOs, the private sector and international donor agencies (I10). For instance, the STDC runs training on the basics of tourism and the importance of working together as a community, on behalf of the Asian Development Bank, aiming to develop ecotourism in Khuvsgul Lake and Onon-Balj National Park and to improve rural livelihoods (ADB, 2019).

The governor from Tarialan Soum explained that various herders are keen to work in tourism but no proposals for government funding are being submitted. This is probably due to a *lack of knowledge* on how to write a proposal (G32). This experience is shared by another community group that recently submitted one project proposal, which was rejected because it was not well written (O11). One youth group in Munkhkhairkhan Soum explained: *"It is a good idea to have tourism here, but we don't know how to do it. We have no experience or the equipment one needs to do it"* (L10). Another herder explained that she seeks support from educated friends or relatives to write proposals (O4). This repeatedly shows the relevance of social networks. The Women Association in Uvs Aimag emphasised that particularly women should be empowered by providing them with knowledge about writing proposals (O8).

The *restricted access to information on job opportunities* was mentioned by different stakeholders (L10, L14). The head of the DET in Uvs Aimag expressed: *"Local herders lack knowledge on how to obtain support from government and NGOs to become active in tourism"* (G26). Another project proposal submitted by a herder group to WWF was rejected because they wanted to build permanent buildings in a SPA. They were not aware of the fact that this is prohibited (O4).

### Value creation

The heritage of *handmade crafts* is deeply rooted in the Mongolian culture and an important part of "nomadic" daily life. This includes hand painted furniture, cashmere, embroideries, clothes, boots and much more (Acorn Tourism Consulting Ltd, 2015). The sale of the handicrafts to tourists, which are produced in and around *ger* camps, can provide a source of complementary income for the local

population (G36, G10, G26, O8). Nevertheless, the value creation in the study sites is perceived as low.

Mainly women produce handicrafts during winter time, either individually or together with a group (O11). Oftentimes, the souvenirs are made from sheep wool or leather. A lack of appropriate technologies may impede the processing of raw materials (O3). For example, a community group, in cooperation with the NGO Snowleopard Enterprise, produces and sells products which are mainly exported to the United States (O4). Another woman, with an entrepreneurial business, processes sheepskin to produce traditional Mongolian clothes (*deel*). The price for her products mainly depends on the raw materials and the customers' willingness to pay. As her business is new, she faces problems in marketing because many people do not know about the business yet. Therefore, the rate of sales in Uvs Aimag is low and her son sells the products at markets in Central Mongolia. With regards to tourism she said:

*"Some Russian tourists buy skins for their cars. I want to sell deels to tourists, but I don't know how to do it. (...) In the future, I want to produce other styles and modern clothes."* (L24)

Especially traditional Mongolian clothes could be attractive souvenirs for Western tourists. The restricted access to consumer markets generally complicates the sale of products (O3). Men tend to sell higher-value products (L24), whereas women are more likely so sell small souvenirs (L3, O11). In Munkhkhairkhan, Chandmani and other Soums, community-based herder groups have an arrangement with the Snowleopard Enterprise, which orders handicrafts twice a year to export them to the United States. This provides the group in Munkhkhairkhan with an additional income of three million MNT (ca. USD 1.123) per year (O4). Young students from the tourism class in Uvs Aimag stressed that firstly, the local product range is not sufficiently diversified and, secondly, the products are not sold in the most important tourism spots (L30).

*Food products* are an important part of the tourism value chain (HDRTC, 2019). Meat and dairy products typically processed by herder women such as curd, butter or cheese can be sold to tourist camps or tour operators (P1, G10). Notwithstanding that fact, hygiene and quality standards are not yet ensured. The Women's Association in Uvs Aimag aims to improve the production and marketing of these products and link herder women with customers who tend to live far away from the centres. This should be achieved by protecting women's rights, providing training and empowering their roles (O8). One herder woman raised the need for

storage facilities in the Soum centre for processed products because “*the goal is to add value to the products here and not only sell the whole animals*” (O<sub>4</sub>).

*Visitor fees* for cultural or natural heritage sites are either very low or not charged. Consequently, neither local revenue is generated nor contributions for conservation activities received.

There was one critical remark from the head of the Khovd Pasture User Group Federation referring to an observation that that some tourists do not *reimburse payments* to herders for their service (O<sub>3</sub>). In any case, this statement was not verified during the field research. Nevertheless, the context shows the general challenge to achieve value creation through freely accessible natural and cultural sources. One concern might be that income generated from tourism might interfere with the Mongolian tradition of generosity and hospitality. Mongols are perceived as very respectful people (Gantemur, 2012). Especially among Kazakh people it is the custom to welcome guests into their homes at any time (Nault & Stapleton, 2011). There is evidence that the culture of hospitality is compromised in other popular tourist destinations (Wigsten, 2005).

The replication of a successful business strategy might lead to *competition* between tourist facilities and products. Therefore, one tour operator advised: “*A diversification of tourism offers, and products is crucial to eliminate competition*” (P<sub>1</sub>). This underpins the need for product diversification and specialisation in particular through setting quality standards and thereby satisfying the demand of the different consumer groups. This view is shared by an investor of a high-priced tourist complex located in a popular tourist area at Khyargas Lake in Uvs Aimag with various basic *ger* camps in close proximity who claimed that:

*“There is no competition, because we set this good standard of service and comfort. We don’t have competitors, but we are competition to the others.”* (P<sub>11</sub>)

Except for this one case, the density of tourist facilities and influx of visitors in other areas are perceived as low. For this reason, all interviewed stakeholders agreed that there is no competition (I<sub>6</sub>, P<sub>3</sub>, O<sub>6</sub>, O<sub>11</sub>). In fact, the manager of one community-run tourist camp assumed that increased competition would result in declining prices, but more camps would also attract more tourists which is generally considered beneficial as the service and quality will improve (O<sub>6</sub>). There are also dissenting opinions on competition among CBTs. If there is highly competitive pressure, prices tend to decrease and hence the service quality deteriorates (I<sub>14</sub>). One tour operator criticised that the focus of donors is merely on tourism development at the local level without considering the relevance of business and marketing needs. By neglecting these key elements, CBT tends to fail (P<sub>1</sub>).

If donor agencies and NGOs identify areas for project implementation, this inevitably correlates with an *exclusion of certain actors* (G30). Another limiting factor was mentioned by one herdsman at Khar Us Lake, who is interested to host tourists: *"I have enough time to combine these two activities, but I would need a second ger for the tourists"* (L3). Investments in road and business infrastructure are needed to support livelihoods in the province, as young people in Munkhkhairkhan Soum agreed: *"We must build a paved road. And support small to medium size enterprises, like for example a processing plant for meat products"* (L10). Without these investments, especially young people tend to look for work in the larger cities to nourish their families. This is in line with Nault and Stapleton (2011, 697) who assessed that low levels of awareness among residents in terms of specific opportunities in tourism resulted in poor locally initiated entrepreneurship and hence lower benefits. A particular weakness of CBT is that it is generally small-scale meaning that not all community members may be involved and thus derive benefits from tourism. Communities are hierarchical and elites tend to garner the benefits excluding the marginalised and poorest community members (Goodwin and Santilli, 2009). With regards to gender, women are traditionally in charge of managing the household which tends to limit their capacities to be involved in other time-consuming tasks (O11, O21).

In terms of *eligibility for funding*, one previous project with TNC has proven to be successful. Based on this experience, the same Soum was selected to continue cooperation and establish a tourist *ger* camp (G13). This can be beneficial for generating long-term employment options. The downside of this preselection is that it restricts the expansion of funding activities to other areas.

*Access to financing* was the most mentioned obstacle preventing the rural population to engage in tourism. The Citizen Chamber Representative in Tarialan Soum stated that *"If we would have the money, anyone of us would do something in tourism"* (G31). As state budgets are scarce, the Soum's incapability to finance local tourism initiatives was regretted by a governor (G32). The Women's Association in Uvs Aimag claimed that women's groups need improved access to funding support to establish and extend cooperatives. The lack of financial capitals restricts their ability to initiate any kind of businesses (O8). Soums cooperate with donor agencies such as SDC (Green Gold) and also with national banks. This allows herders to request loans with a low interest rate. Nevertheless, donor dependency due to short-term project duration is common in CBT (Goodwin & Santilli, 2009).



In Khovd Aimag, two established community-based *ger* camps with support of TNC received USD 40.000 of which 20 % had to be contributed by each group (I6). The DET in Uvs Aimag stated that loans with low interest rates are provided to those communities and the private sector is interested to develop tourism and especially CBT (G36). With regards to the Soum development fund, the tourist camp at Uurug Lake received nine million MNT (ca. USD 3.368) to build the camp (O11). Another woman who set up her own sewing business received a loan amounting eight million MNT (ca. USD 2.994) to invest in machines and equipment (L24). Young students mentioned that financial shortages are the main problem for establishing a tourism camp (L30).

**Textbox 7: Tourism offers and community involvement – examples from the study sites: CBT founded with the support of an international development agency (O14).**

Ундрал НИТАЖ Жуулчны бааз is a tourist *ger* camp in Tarialan Soum, Uvs Aimag, with two *gers* and ten beds run by a herder community. The community is part of a cultural group with roots in Turkey. Five related families are involved in the CBT. In 2009, the community initiated collective nature conservation measures through afforestation activities. Especially the younger members aimed to work in tourism, as they had troubles of finding a job. In 2018, the community offered their first tourism tour as they received training in tourism from the GIZ IMRI programme. The camp operates all-year round, except for spring season, which is a busy time when the offspring are born. Also, the road is often flooded by the melting snow, which makes it too risky for tourists to travel to the camp. The wider community offers support by providing products or cars when needed for clients. The group needs to be informed about visitors two weeks in advance to organise their stay, including transport and activities to visit natural, cultural and historical sites. One special tour with an overnight stay offers an ethnic show, traditional performances, milking of the animals and visiting the mother tree. This sacred tree is one of only a few in the country and people come to worship it. On average, they receive approximately 700 visitors per year, who stay in average for one night. Only one per cent of the visitors are from foreign countries. In the future, they aim to draw up a 10-year plan to repair the road, build a pond, invest in nature conservation and improved livestock breeds (O14, I8).

## Legal Framework and Permits

*Spatial planning* considering the specific needs of the tourism sector does not exist in many PAs (G35; Wigsten, 2005). Only a few regulations for the establishment of new accommodation exist, e.g. to guarantee a minimum distance between the facilities. Nevertheless, these rules are not always respected (Dorjusuuren, 2009; G35, P8). As a result, some tourist hotspots such as Terelj are “spoilt” by the mismanagement of infrastructure projects (G35, P1). Similar factors apply to Khyargas Nuur in Uvs Aimag. Since the road construction was completed connecting Ulaanbaatar with the lake, at least five tourist facilities have been built (P7). This development indicates that some sites in Western Mongolia could eventually face similar risks when proper management and spatial planning is neglected.

To establish a tourist camp, *land use permits* need to be obtained from the local authorities (G20). In accordance with the land law, fees have to be paid to lease the state-owned land. As other studies show, it is not easy to get a permission to start a business (Myadar, 2006) and one camp owner explained that it is necessary to know the right people to get the license (P11). The prices are higher the closer the site is to the next centre. A governmental official argued that land use permits are granted too easily, as the PAA have the incentive to obtain rapid revenue (G35). Building plots to construct accommodations and other permits to undertake activities in a PA need to be requested and authorised by the central government (G26, G35). Interested companies need to submit their requests for a land possession license to the governors of the respective Soum. Moreover, they need to justify the purpose and duration of the land possession as well as creditworthiness (Myadar, 2006). When giving permission for touristic infrastructure projects in PAs, an environmental assessment is legally binding (G20; Jargal, 2017). One manager of a private camp explained that the approval procedure lasted for more than two years (P11). Beside the environmental assessment, no regulation is required by the PAA (G35) but further building alterations or extensions of tourist products require an additional impact assessment (O6). Conflicts may arise between local residents and tourist companies as the latter tend to select the most scenic spots. This may restrict local communities' access to the respective land or even lead to displacement (Myadar, 2006).

With regards to the management of CBT, one interviewed community group followed a five-year *management plan* to mitigate risks (I6). Further it was mentioned that capacity building among local authorities and the population on legal rights and regulations is crucial to increase awareness about land rights. The WWF

stated that the legal environment is not ideal because community groups cannot register as businesses and therefore are prohibited to open a joint bank account. For this reason, they only have a community fund (I7).

### **Heritage and Authenticity**

Heritage tourism is characterised by the motivation to experience unique cultures of past and present times. Authenticity is a key criterion to preserve and maintain an original, universal value of the cultural assets and is a crucial driving force that motivates people to travel to distant places. Scientists pointed out that authenticity considerably improves the quality of heritage tourism (Park et al., 2019).

In Mongolia, the core experience is not site-specific hence it is not connected to certain monuments or places, but to the rural nomadic lifestyle (Wigsten, 2005). Nevertheless, the options for visitor attractions to experience the nomadic culture are fairly limited which is why tourists seldom stay for a longer time (JICA, 1999, p.95). This was confirmed by interviewed *ger* camp owners and managers who stated that tourists predominantly stay for one or two nights in a camp before they move on (O6, O14, P3). Experiencing nomadic culture is not unique in Western Mongolia. If tourists favour the rural lifestyle over specific cultural customs, they may prefer short distance travel. This means that the competitiveness among domestic destinations highly depends on the local residents' ability to develop skills that meet tourists needs (Gantemur, 2012).

The motivation to experience cultural heritage is a main motivation for travellers to visit Khovd and Uvs Aimag:

*"Pure Kazakh traditions are still alive and practices. In Kazakhstan you can't see it anymore, it disappeared during soviet times. Going to Western Mongolia is like going back in time."* (P10)

Foreign tourists that travel individually without a tour operator cherish their stay with local people because *"it is cheaper, they get more authentic experience and some insights into the real culture"* (P10). Those kinds of tourists *"want to experience the pure way of life, without electricity and internet."* (P10). With the interest in the nomadic lifestyle, a manager of a permanent facility proposed to bring tourists together with herder families to eat local specialities (P8).

As described earlier, eagle hunting has become a tourist magnet as it is a special experience. Negative consequences might appear due to an increasing number of visitors, e.g. a growing tendency of fake hunting (P10).

## Events and festivals

*Cultural events* are supported by the provincial governments to attract more visitors and to extend the tourism season (G<sub>4</sub>, G<sub>34</sub>). Besides for the purposes of tourism, cultural celebrations may contribute to strengthen social cohesion, maintaining and preserving traditions among local residents.

Most of the Mongolian ethnic groups live in Khovd Aimag (I<sub>14</sub>). For this reason, *“tourism in Khovd should focus on ethnic and cultural aspects as this is unique”* (G<sub>5</sub>). Ethnical characteristics (e.g. special types of tea, robes and bags) are promoted during the tea road festival which was preponed to August in 2019. The opening ceremony and several performances are held at the Khoid Tsenkher caves. In the afternoon, a camel caravan, loaded with equipment, starts moving to the Aimag centre where the rest of the festival takes place. The number of expected visitors is unknown and no monitoring system is in place (G<sub>4</sub>). The local government is primarily responsible for the organisation of the event with the support of the local people (G<sub>35</sub>, G<sub>4</sub>). In Khovd Aimag, the tourism department organised various performances and offered local products to visitors including clothing, leather and food products. International tourists appreciate the traditional music and costumes (T<sub>2</sub>, T<sub>4</sub>). This year, only very few international tourists were present, but the government of Khovd Aimag is trying to establish the festival as an important tourist event, primarily by means of intensive marketing.

In Uvs Aimag, the trade and commercial chamber organises the Sea buckthorn festival which is held in September (O<sub>9</sub>). The annual Ice Festival takes place at Khyargas Lake in the end of March and includes a camel race which draws many domestic spectators (G<sub>34</sub>, O<sub>14</sub>). The international festival of Oirads (August), the Uvs Lake wrestling cup (September) and the spring festival at Uvs Lake (May) attract further visitors (HDRTC, 2019). Smaller folk festivals are organised by Soums (A<sub>8</sub>, O<sub>14</sub>).

Expanding the tourism product portfolio according to individual needs might be an opportunity to receive more tourists during the peak and also off-season. Additionally, an increase of cultural events might be favourable to attract more tourists (P<sub>1</sub>). It was observed that the quality and range of products sold during the events comprising foodstuffs, processed agricultural goods, traditional clothes, leather items and accessories could be improved by adding value.

**Textbox 8: Tourism offers and community involvement – examples from the study sites: Private *ger* camp established as local business (P6).**

Surleg Kharkhiraa *ger* camp in Tarialan Soum, Uvs Aimag, was established by a couple in 2013 with support of the IMRI SME programme. No further support was received since then and there is no cooperation with other organisations. The husband is a large-scale wheat producer and the wife is employed with a coal exporting company. Additional income is generated from Sea buckthorn farming and her own bakery. Income from tourism only accounts to 20 % of total revenue and is mostly reinvested. The wife learnt about tourism during business trips to Russia and was the first one in the Soum to have this idea. Currently, there are three *gers*. During peak season in summer, she hires three full-time employees, who earn 350.000 MNT (ca. USD 131) per month. At other times and during the winter, workers are employed dependent on the demand. The camp mainly receives domestic tourists (250 to 300 visitors) and only 10 % foreign tourists per year. The average duration of stay is three nights. The visitors come to enjoy and praise the nature by hiking up to the river and mountains. Mongolians come for the traditional Kharkhiraa food: *"local people love it"* (P6). In the future, she wants to build three wooden houses, a basketball and volleyball field. Waste separation and the instalment of flush toilets are planned. She wants to *"make it one of the best and most beautiful spots in the region that people like to visit"*. (P6)

**Marketing**

In academic literature a common critique argues that portraying herders as "nomads" is used as a marketing strategy by powerful actors in politics, tourism business and academia to create exoticism. That bears the danger that:

*"by referring to 'nomadic lifestyle and culture' the narrative may recreate the myth of the absolute nomad, appealing to the received wisdom that tourists want confirmed, yet it is culturally erroneous and historically inaccurate."* (Marin, 2008, p.81)

In terms of marketing it is important to reflect on the content and created images about the communities. Furthermore, it is notable that the focus of the marketing strategy to promote Mongolia as a tourist destination is predicated upon its remoteness and pristine nature (Marin, 2008, p.81).

The study findings reveal that *social media* and especially Facebook are among the most important marketing platform, used for travel recommendations and information on the services (G13, P9, L14, I14). Contents are predominantly composed in the Mongolian language; the command of English is low. In one camp, advertisement is done by someone who knows the respective community groups well and it does not cost anything (P10). One community-group from Uureg Lake explained they do not advertise because “*tourists get informed by oral marketing or Uvs Aimag tourist map. Other people just choose the lake to go and search for camps*” (O11). Requesting recommendations from acquaintances is very popular among domestic tourists and was approved by other community groups. Less common is TV advertisement (P6). Tourism websites can serve as a source of information to announce events and destinations, but it needs to be updated regularly. A basic prerequisite for international tourists is the availability of information in English. At the time of this research, the website from Khovd and Uvs Aimag was not functioning.

*Tourism fairs* are an established and relevant marketing tool especially for business networking purposes. Mongolia participates in the annual international travel trade show ITB Berlin where the festivals are also advertised (G4). A national tourism fair serves as a platform to bridge the gap between tour operators and local communities and takes place in Ulaanbaatar in March (P9). Financed by a national tourism program, Khovd and Uvs Aimag were represented between the years 2017 and 2019 (G26). For the promotion of CBT, representatives of community groups participate in the national tourism fair (G13). It is unclear whether the provinces will also be represented in the future due to the limited budget of the national tourism programme (G26). In 2019, a fair for domestic tourism was organised for the first time (P9, I4).

Other *online booking platforms* used by local people are Airbnb e.g. by reindeer herders in Northern Mongolia (G35) or Indy Guide. The latter is a platform connecting travellers directly with vetted local guides and service staff without the need of tour agents (P10). This can be beneficial for the travellers, who can get a tailored package and the residents, as a larger share remains with them: “*Both travellers and guides enjoy this*” (ibid.). Indy Guide provides free information on creating a profile and how to market it. However, the founder said that “*The local residents need to know more about social media, to make their Facebook page.*”

One camp manager prefers the *cooperation with international enterprises* over domestic tour operators, arguing that Mongolian tour operators only serve as mediators between them and international operators, therefore less money is left for

the local people. Hence, they cooperate with three British tour operators. They do not carry out additional promotion because the capacity of the camp is limited (P<sub>4</sub>).

Cooperation between western Aimags is a strategy to attract more tourists (G<sub>4</sub>): “*Western province gets a lot of domestic tourists because it is the gate-way to Bayan Ulgii province*” (P<sub>9</sub>). Bayan Ulgii Aimag is more developed as a tourist destination and receives more visitors (P<sub>10</sub>). Hence, close cooperation and common marketing among the provinces can contribute to create an integrated tourism network (UBTA, 2017). Coordinated travel routes, events and heritage visits can be beneficial as all three Aimags could receive tourists visiting the region (HDRTC, 2019; P<sub>9</sub>, P<sub>10</sub>). A common branding strategy would be critical for a better market position and to promote the whole region as a travel destination (P<sub>9</sub>). This implies that ideally a joint network among CBT camps in Western Mongolia should be created and promoted to clients.

### **Risks and dangers of tourism**

If the rural population is professionalised in tourism and receives many visitors, there may be a change in nomadism (P<sub>1</sub>). Hence, there is a risk of interference with local livelihoods by tourism activities threatening local cultures: “*Yes, it is a risk that they sell out their tradition. But they are not poisoned by the money yet. That will keep them and their tradition safe*” (P<sub>10</sub>).

The *risk exposure* for tourists in the study sites is generally low (O<sub>2</sub>). For security purposes, tourist camps provide safety information and codes of conduct (O<sub>6</sub>, O<sub>11</sub>). At the TNC camp at Durgun Lake, one man from the Soum was trained as a lifeguard. However, this person only works on a casual basis and lacks any kind of rescue equipment. There are life jackets for non-swimmers, but of insufficient quality (O<sub>6</sub>). In other places, security cannot be secured (P<sub>9</sub>). For hiking or horse riding a professional guide is mandatory to ensure safety but also needs respective equipment (P<sub>10</sub>). Due to low quality transportation, there is a risk of cars breaking down (L<sub>30</sub>).

Some international tourists may be charged *excessively high prices* for tourism products. This is confirmed by the feedback of one traveller who said about his overnight stay at a community camp that they were happy to do that once but would not do it again because the price value relation was bad (I<sub>11</sub>).

The *level of hygiene* due to the poor standard of sanitation facilities has occasionally been deplored (O<sub>11</sub>, O<sub>14</sub>, T<sub>5</sub>). One tourist camp manager explained that they want to build a flush toilet for the tourists. Currently they only have pit la-

trines: *"We feel sorry for the tourists. Our sanitation facilities are not up to their standards (...). So, I think they suffer"* (O11).

*Food safety* is of concern for tourists. The low standard of restaurants in the provinces might pose a problem to visitors. In terms of traditional Mongolian food, eating habits and food preferences can be a considerable challenge especially for visitors with special diets or food intolerances when hosted by the local population (T6).

Transparency and accessibility of information is crucial to promote travel destinations. Hence, the *lack of information in English* poses a problem for foreign tourists to travel individually. This was deplored by participants of the Mongol Rally who searched for recommendations on accommodations, restaurants and attractions in Khovd and Ulaangom, but struggled to find English translations or people with a command of English (T7, T10). A *ger* information centre for tourists in Ulaangom provides travel information about the Aimag in English to fill this gap (HDRTC, 2019). However, the centre was temporarily closed at the time of fieldwork as the person in charge was on maternity leave for several months (G26).

### **Waste management, recycling and waste water treatment**

The accumulation of waste is a negative side effect of tourism in PAs and elsewhere (L14). According to the observations of interview partners and confirmed by academic literature, domestic tourists and visitors are mainly responsible for environmental pollution as some leave trash behind (G26, L30, O5, P8; Sereeter, 2013; Strasdas, 2017). CBTs make efforts to separate and recycle the waste (O5, O11). Plastic waste is transported to the Soum where it is dumped. It was also mentioned that a woman in the Soum centre buys plastic waste to sell it in Ulaanbaatar. The lack of employment and poverty are general reasons for people to become informal recyclers to create income to secure their livelihood in the absence of an official recycling system (Uddin & Gutberlet, 2018). In fact, observations and interviews indicated that waste separation and recycling is at an early stage in the study sites. Initiatives are employed to tackle this issue in the touristic places (I14). The IOM requires the government to provide incentives that *"at least some money stays in rural areas and domestic tourists are educated about it"* (I12). The DET inUvs province has a focus on environmental safeguarding e.g. through providing sanitation facilities in the areas close to the lakes. However, environmental pollution remains a problem (G26).

*Wastewater management systems* in the Aimags are generally weak (HDRTC, 2019). One CBT has a filtration system installed underground. When the camp



closes in September, the stored residues are collected by a local company (O6). However, there is no general monitoring of wastewater removal (Sereeter, 2013). Other environmental pressures by tourism include soil erosion, degradation of biodiversity, air and water body contamination (Balaš & Strasdas, 2019).

## 7.8 Discussion on sustainability and tourism

This chapter discusses tourism development in terms of socio-cultural, ecological and economic sustainability.

### Socio-cultural sustainability

*Social sustainability* in tourism is concerned with promoting the participatory planning and management of tourism activities, encouraging decision-making with and by local communities, especially by including lower-income and poor households (Andriotis, 2018; Moscardo & Murphey, 2014; Raimundo, 2017; UNWTO, 2013). Instead of simply expanding the sector, it is crucial to pursue poverty alleviation in the early planning and development of activities (Lor et al., 2019; UNWTO, 2010). Thereby, it can be avoided that income generated from a local destination leaks away to external stakeholders or reaches only better-off members of the community (ibid.; Kontogeorgopoulos et al. 2014, p.109; Leung et al., 2018, p.25). The early stages of tourism sector development in Khovd and Uvs Aimag offer the opportunity for an inclusive development of the sector, by building on experiences from other regions within and outside of Mongolia. As the study findings show, community involvement in Khovd and Uvs Aimag is currently low, nevertheless different public and private stakeholders are keen to develop CBT in the region.

In terms of *cultural sustainability*, tourism development can strengthen cultural identity (G5) and community empowerment (Paddock & Schofield, 2017, pp.16-17). On the downside, several potential threats may lead to negative impacts on the cultural capital of local people. Unregulated tourism development can pose a risk to cultural and historical sites (Leung et al., 2018; P9). Also, the supply of “romantic” versions of the herder lifestyle can lead to the erosion of its original meaning and instead construct an image of “Mongolness” with the purpose of commercialisation (Ahearn, 2018c, p.283; Myadar, 2011, pp.354-55; Paddock & Schofield, 2017, pp.16-17; P3, P10, O14). Interferences of tourists with sacred sites (L10, L12, O11, G15) and with the day-to-day lives of the residents (P1, I4, G5) are perceived risks of a further tourism development in the study site. There is a ten-

dency that gender roles and relations are being reinforced in cultural tourist services or during tourist events.

### **Economic sustainability**

Regarding *economic sustainability*, a fair distribution of income generated from the sector is a central issue of concern (Raimundo, 2017). By pursuing the strategy to develop tourism as the third pillar of the national economy, there is a risk of creating false hopes among the local population. Firstly, the tourism demand is low in Khovd and Uvs Aimag, due to the remoteness, accessibility and seasonality (UBTA, 2017; P9, P1, G5, I11). These factors can only be mitigated to an extent and represent long-term growth limitations for the tourism sector. Secondly, the share of the revenue generated from tourism by people living in the provinces is marginal and not fully utilised (G5, P9; HDRTC, 2019; UBTA, 2017; Wigsten, 2005). Unequal distribution of tourism benefits is related to a lack of knowledge, skills as well as limited access to finance and a low level of linkage between tourists or tour operators and local people (I5, I14, I11, O4, P1). Furthermore, job opportunities within the sector are often characterised by unstable, seasonal employment, low wages and poor social security (A8; Balaš & Strasdas, 2019; Leung et al. 2018, p.25). The seasonality of the sector is a challenge for both employees and tourism businesses (Leung et al. 2018; P9). Entry barriers often hinder poorer households from working in the sector (Goodwin & Santilli, 2009). Not only in regard to financial means, but also to time and labour investment, there is a risk that tourism activities are not compatible with the livelihoods of local people (Goodwin & Santilli, 2009). Therefore, it is crucial to plan activities in a target-group specific and inclusive way (UNWTO, 2013, p.18). This includes retaining visitor spending locally and extending employment opportunities on a non-discriminatory basis.

### **Ecological sustainability**

In terms of *ecological sustainability*, tourism can have destructive effects on the environment and climate. Direct environmental risks, which were observed in the study areas, are related to landscape degradation, waste, and water pollution, as well as soil degradation and wildlife disturbance (Sereeter, 2013; Strasdas, 2017). Indirect effects can occur through the spending of income, generated in the tourism sector. As livestock acts like a bank for herders, the assumption that more income from tourism leads to less livestock could not be verified in the study. In terms of pasture management, it is therefore crucial to pay attention to the relation between additional income from tourism and the effects it has on livestock numbers.

The relationship between tourism-related emissions and climate change amplifies the urgent need to adopt low-emissions strategies based on reduced travel distances (e.g. by focussing on domestic and regional tourism development) and the utilisation of lower-emissions means of transport and services, including accommodation and amenities (Bojanic & Warnick, 2019; IPCC, 2014b; Lenzen et al., 2018; Peeters and Dubois, 2010; Peeters and Eijgelaar, 2014). Additionally, the climate crisis is recognised to pose a major threat to the continued operation of tourism destinations. This is due to the fact that the tourism industry, to varying degrees depending on the location, tends to be more vulnerable to climatic impacts compared to the entire economy (Dogru et al., 2019; Michailidou et al., 2016). Strong sustainability measures have to be put in place to avoid supporting maladaptive tourism activities that increase rather than decrease the long-term vulnerability of host communities. One possibility to approach this problem is to generate opportunities to compensate emissions on a local level (e.g. through reforestation projects and landscape regeneration in the provinces).

## 8 Recommendations

### 8.1 Livelihoods

The authors have identified six different societal target groups to be addressed by GlZ and its cooperating partners under its efforts to reduce poverty and promote income diversification, as well as a sustainable and inclusive development of the horticultural and tourism sectors in Khovd and Uvs Province. These groups emerged from the assessment and description of characteristics (their strengths and deficiencies in capital assets and vulnerability) of current livelihoods of the different groups of the rural population, based on interviews with the groups themselves, local experts and authorities and under the consideration of vast literature. These groups were shown to be in greatest need for complementary/alternative income and/or have shown to be most inclined to work/interested in working in the two studied sectors. When identifying groups of people to be addressed, one should consider that individuals may belong to multiple groups (e.g. women from small-scale pastoral households or less educated youth).

#### **Households already active in both sectors**

Sector development should focus on fostering the resilience and quality of life of households already active in either of the two sectors, as many are currently operating on a scale which is insufficient as a sole income source to provide for the entire year. Moreover, many actors are potentially at risk of sudden asset loss and subsequent poverty as a result of shock events or other external influences like climate change. This may be the case for small-scale herders with less than 200 heads of livestock and horticultural producers with fewer hectares and limited market access as they mostly depend on income from horticulture. The overall aim should be to improve current structures and practices and enable more stable operations in the short-, medium-, and long-term (as described in the paragraphs about the respective sectors below), while at the same time providing new and targeted income opportunities for specifically identified other members of the rural population.

#### **Job seekers and less educated**

The promotion of employment opportunities should specifically target individuals that do not possess any vocational training or education beyond the secondary level as they face an especially high poverty rate. People actively searching for

job opportunities are in greatest need of local employment opportunities and income generation. As most activities in either of the two sectors pose relatively low entry barriers in terms of required formal education, job seekers and less educated individuals should be addressed by capacity building in the form of short-term training on horticultural production or tourism service jobs. Local educational institutions (e.g. vocational colleges in Khovd and Ulaangom) offer capacity building in these fields and would be able to accept more trainees. The apprenticeship is supported by the government and free of charge, thus would pose no entry barriers for jobseekers.

### **Women from lower-income households**

Especially single mothers, women from low-income households and women who have to move to the Soum during winter to stay with their children are considered in need of improved income generation, as they often face either unemployment or are engaged in part-time, seasonal or low-paying jobs. Barriers to ownership and decision-making power over resources need to be reduced by providing better access to capital assets and decision-making positions to women. This could help counter prevailing normative gender-based attributions and overcome the double burden of productive and reproductive work. Particularly marginalised female members of households may be targeted in alignment with programmes implemented by the Mongolian Women's Federation in Khovd, the Women Association in Ulaangom, the Youth, Children and Family Public Development Agency or potentially the Mongolia Women Farmers Association. These organisations reported various success stories and high interest of women getting engaged in horticultural production, processing, marketing and sales. In order to reduce the high workload, existing and new women cooperatives and groups where women can support each other and collaborate should be fostered and promoted. Interventions should be designed under a collaborative approach for this specific target group. This could facilitate better economic inclusion and empowerment and generate more and better income opportunities for women than targeting them only from an individual perspective. Inclusive sector development should consider existing demands of women from lower-income households, their aspirations, availability as well as knowledge and skills.

### **Youth**

Tourism and horticulture sector development should align with the aspirations of young people, about provisions of education, including vocational training, and stable incomes, as they face an especially high unemployment rate and the urban

centres cannot provide enough job opportunities for the high number of young people migrating there. Supporting the availability of financing mechanisms tailored to the demands and aspirations of young entrepreneurs who often do not want to become indebted may also be considered. All efforts should be aligned with the work of the Youth, Children and Family Public Development Agency, the Youth Federation as well as the Department of Labour and Social Welfare Services. These i.a. offer stipends promoting college apprenticeships in more practical handcraft jobs over university study programs and/or act as a bridge between young entrepreneurs and investors and employment opportunities in the job market.

**Pastoralists with fewer than 200 heads of livestock, who experienced significant loss of livestock and have become (semi-)sedentary**

Mobile herders that may be addressed by direct interventions – e.g. the promotion of horticultural production – include those with less than 200 heads of livestock that show (semi-)sedentary behaviour (see livelihoods description). Pastoral households to be targeted in particular are those experiencing (or that are at the risk of) loss of livestock and income from shock events and gradual changes in the environment which may potentially endanger the continuation of their main income activity, as they often find themselves among the poorest of society without the necessary means and knowledge to engage in other income activities. However, they are in high need thereof and were often interested or already taking first steps in getting involved in horticultural production, thus they could be supported in their efforts. Meanwhile most interviewed pastoralists with more than 200 livestock saw no necessity and showed no interest in additional income sources outside of herding, as they did not have the time or labour power to engage in additional activities. Moreover, doubts were raised about the compatibility of the practiced mobility with stationary horticultural production. In this regard, part-time engagement with tourism was only partly envisaged to be possible. However, the assumption that additional income from other sources would lead to a reduction in livestock numbers and pressure on natural resources (e.g. overgrazing) could not be confirmed, as interviewees expressed their wish to maintain their herd size at a constant level or even increase it. Thus, for the tackling of issues like overgrazing, other measures should to be investigated and considered as well, like the promotion of quality over quantity of meat (see current government strategy) or Pasture User Agreements (see work of SDC).

### Artisanal miners

Individuals or groups of people that generate at least part of their income from artisanal and informal gold mining are in need for income diversification amidst the associated risk to people's health and the local environment. As the government gradually phases-out artisanal mining (particularly in local Soums in Uvs Aimag) the horticultural sector is seen as a viable alternative for income generation for this group. Entry points should be investigated where formerly active miners turned to other sources of income (e.g. horticulture) and could potentially act as role models and multipliers in the transition process for other households. Undertakings to include mining households should be aligned with currently enacted efforts by the Department of Agriculture in promoting other sources of income for people formerly active in mining.

## 8.2 Horticulture

The following recommendations aim to support the sustainable and inclusive development of the horticultural sector in the study site. All suggested actions draw from the findings of the preceding sector analysis. Taking into account the principal addressees of this study, the proposed recommendations are directed towards the IMRI and SPACES programs of GIZ Mongolia.

### Cooperative organisation

- *Establish a round table* that systematically assesses the potential of horticultural cooperatives, including the NAMAC as an important stakeholder and actor in the cooperative landscape. In collaboration, strategies that aim to improve the reputation of cooperative organisation and effectiveness of group formation of producers should be developed. *Knowledge and information exchange* can be fostered by connecting Mongolian horticultural cooperatives to international counterparts. Contacts may be established by The International Co-operative Alliance for Asia and the Pacific (Coop). Language barriers need to be considered and prevented by providing professional translation services.
- *Actively engage in advocacy work* for agricultural cooperatives regarding amendments to both *cooperative and taxation law* in order to reduce bureaucratic and financial burden through double taxation of cooperative produce. Further discuss the options for *government subsidies* on cooperative horticultural production with the Ministry of Food and Agriculture. As

the Ministry already successfully subsidises cooperatively produced raw materials of the livestock sector, a similar procedure should be worked out for horticultural products. Such subsidies would help to strengthen cooperative organisation, provide reliable prices to producers and make them more competitive when compared with farmers of neighbouring countries where such policies are already in place.

- *Focus on existing member-based cooperative structures* when offering technical or organisational support instead of creating incentives for owner-based cooperatives.
- *Make information available* (online) that helps cooperatives to join or expand their activities and thus facilitate the *establishment of mixed cooperatives* to foster synergies between herders and farmers (e.g. through reciprocal provision of animal fodder and natural fertiliser). Also, support horticultural cooperatives in their efforts to engage in agro-tourism by capacity-building. Offer shared business services (e.g. create a business plan, improve marketing) to cooperative members that pursue a *diversification of their activities*.

### **Adapted technology and improved management**

- *Regenerate existing irrigation systems* and promote the construction of new ones in areas with high water demand and shortages (e.g. Buyant, Ulaan-gom). Strengthen the Uvs and Khovd River Basin Organisations in their capacities and legal status to systematically assess and monitor current and predicted future water availability and usage rates in order to determine sustainable usage limits on water resources. This presents an important prerequisite in order to plan and manage water resources for horticultural production. Especially knowledge on groundwater resources is close to non-existent, thus this resource should remain untapped without prior groundwater studies. For existing irrigation arrangements: Set up fair management systems in which downstream farmers are not disadvantaged. This can be achieved by working together with the existing Water Users Groups and the River Basin Administration which establish inclusive water user schedules through participative consulting processes. Further assess feasibility of how (long-term) water availability throughout the year could be secured through different considered large and small-scale surface water catchment and storage technologies such as artificial snow ponds in order to adapt water provision to current and future climate change impacts.



- *Promote water-saving technologies* like drip irrigation. According to a cost-benefit analysis by Baranchuluun et al. (2016), drip irrigation is the most efficient method to reduce costs as well as minimise negative environmental impacts when compared with furrow or sprinkler irrigation. A feasibility study that concretises sustainable financing mechanisms is indispensable to increase the adoption rate among farmers.
- *Promote affordable summer, 3-season and winter greenhouses* with sufficient stability amidst local extreme weather events. Furthermore, promote the *use of local construction materials* (e.g. nature-based solutions with bricks already partly in use) and *non-fossil heating technologies* (see GERES). Loans given out to individual farmers for investments in greenhouses should be complemented by capacity building measures on their operation (e.g. switching to a two-harvest system) and maximising their use in order to assure rentability and successful amortisation.
- *Explore the options for increased horticultural mechanisation* on farmers' fields. Physically exhausting occupations like manual farming appear to be unattractive to many, hence calling for the improvement and *upgrading of production techniques* by the use of walk-behind cultivators (vegetable production) or electric pruning shears (sea buckthorn production) in order to reduce workload. High-cost automated harvest systems on the other hand should thus not be promoted as they make many workplaces obsolete and are financially unfeasible for many farmers. The focus for horticultural mechanisation should be improved *soil preparation and planting technology*. A pilot project should be initiated through which different options are handed to and evaluated by fruit and vegetables farmers.

### Information campaign

- *Support the national efforts to broadcast the dietary benefits* of fruit and vegetables and emphasise the role that local and sustainable production plays for *consumption*. To address this topic, the GIZ should seek cooperation with the Mongolian Women Farmer Association (MWFA) and the Nutrition Research Department of the National Centre of Public Health under the Ministry of Health. The self-consumption of vegetables may be promoted by offering cooking classes or publishing recipe booklets (see cooking component of the SDC VEGI project) for households in the study site.
- *Collaborate with the Department for Social Welfare in Khovd and Uvs Aimag to promote employment in the horticultural sector* among the jobless local

population. Individuals in search of employment should be *systematically introduced* to this field of work and equipped with relevant knowledge. This could be aligned with ongoing/existing efforts of the “Sustaining Job” programme of the Department of Labour and Social Welfare Services – which already provides equipment and inputs to 60 job-seekers each year and offers them to engage in horticultural production on land that is owned by the department. As the demand is however higher than can currently be met, the programme should be expanded.

- *Stress the need for climate (change) adapted practices* (e.g. water-efficient irrigation systems, locally constructed and non-fossil greenhouses, drought resistant varieties, soil management practices that increase soil organic carbon) in the agricultural sector based on the *scientific evidence* for water availability, temperature increase and occurrence of extreme weather events in the study site. The existing awareness and experiences on the local level should be considered in regional and national policies. Thus, the GIZ should make the various aspects of climate change a priority in all interventions aimed at horticultural development and also stress the importance when negotiating with cooperation partners. Experiences and best practices should be drawn from the “Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchment in Mongolia” project by UNDP which highly recommends replicating their implemented measures (i.a. in some Soums of Uvs Aimag) in other Soums.

### Coordination of efforts

- *Seek compatibility of national strategies*, the Aimag’s development plans and projects of international development agencies (e.g. agro parks: ADB; climate change adaptation measures: UNDP; greenhouses: GERES and JFPR, SDC VEGI project) through regular *information exchange* as well as the use of valuable lessons-learned and review of best practices. In order to guarantee good coordination, the GIZ could initiate a platform for stakeholders in the horticultural sector and facilitate communication between governmental, academic, international and private bodies as well as civil society.

### Consultancy of expertise

- *Benefit from the expertise* available at the Mongolian University of Life Science (MULS) and the Institute for Plant and Agricultural Science (IPAS). The *consultation of academic experts* on soil and crop science is indispensable to

understand the complex agro-ecosystems present in the study site and to develop sustainable solutions adapted to the local context

- *Expand the cooperation with local actors*, as the population of the study site shows a high degree of awareness for problems in the horticultural sector. Both the River Basin Administration and the Water User Federation are organisations with a large amount of local knowledge on natural resource management.). The GIZ should work together with local agricultural professionals or small-scale farmers with innovative approaches who could act as multipliers for their ideas and experience (e.g. seed producer in Tarialan, greenhouse farmer in Tarialan, vegetable dryer in Khovd).
- *Ask horticultural experts to identify bottlenecks* of horticultural management by consulting the data available in farmers' field history books.

### Capacity building

- *Broadcast good agricultural practices* among farmers by disseminating of information brochures, organisation of workshops or invitation to demonstration fields. Special attention should be paid to (1) pruning in berry production, (2) soil management practices such as legume intercropping or composting for vegetable production, (3) irrigation management for sustainable water use, (4) fertilisation with locally available material, (5) natural solutions for effective pest management, and (6) planting techniques in greenhouses. Those practices are key in order to guarantee the sustainability of horticultural activities in and are not sufficiently addressed the study region.
- *Consider the practicability of concepts like conservation agriculture or organic agriculture* in the study site in order to prevent land degradation, stop soil erosion, enrich the soil with organic matter and secure environmental and human health. The Polytechnic College in Ulaangom should be addressed as a focal point when planning a pilot project or research plots for different cultivation methods.

### Value chain perspective

- *Support efforts to build publicly-owned storage facilities* that are accessible and available to small-scale farmers (e.g. through the collaboration with GERES).
- *Strengthen local efforts for value addition* (e.g. the small vegetable drying enterprise “АМТ нэмэх үү”, individual producers of sea buckthorn juice or

vegetable salads) by providing *technical information* on adequate processing equipment for fruits, berries and vegetables. Also, foster investment in large-scale processing facilities for horticultural products on Soum level to allow for value addition and to generate local employment.

- *Secure employment and income opportunities around the year* through the promotion of *winter greenhouses* as well as processing and storing of horticultural products. A feasibility study should be conducted in order to identify adequate financing options to secure the financial sustainability of such investments for small-scale producers in the long-term.
- *Contemplate the advantages of establishing a regional brand* for horticultural products from Khovd and Uvs Aimag or the Western Provinces in general. The branding should be tied to production standards that secure food quality and safety. Various stakeholders (NAMAC, small-scale farmers, horticultural SMEs, Department for Food and Agriculture, and IPAS) should be included and consulted to discuss this option. Opportunities to create product differentiation through GI or organic production that are inclusive and can benefit most small-scale farmers in the study site may be explored by funding a marketing study and assessing consumers' willingness to pay.
- *Explore the options for agro-tourism*. Efforts should be focused on speciality products characteristic to a specific geographical region, e.g. a "sea buckthorn program" in Ulaangom Soum, Uvs Aimag and a "watermelon program" in Buyant Soum, Khovd Aimag. Touristic activities may include the harvesting, processing and tasting of the respective fruits.

## Financing

- *Revise the conditions for government funding* (e.g. Soum Development Fund) by considering the need for *long-duration and low interest loans* for small-scale farmers that are also available for women. Financing should be tied to capacity building measures that equip farmers with knowledge on good horticultural practices and food safety and quality.
- *Consider indebtedness of a majority or rural households* and seasonality of debt. In this light, assess the practicability of concrete finance mechanisms like group application for low-interest loans of long duration, *subsidies* for horticultural production or contract farming. It is recommended to assess the best financing options for horticultural businesses by launching a technical study.

### Horticultural diversification

- *Increase the availability and accessibility of high-quality seeds.* This may be done by (1) initiating plant breeding activities in Western Mongolia, (2) connecting innovative seed producers to the market, and (3) facilitating the import of seeds.
- *Recognise the importance of crop diversification.* It works out as an advantage for farmers in the study site as they may broaden their market offer and achieve better prices for their specialty products. Thus, the GIZ should encourage farmers to produce a wider crop portfolio and plant plots of e.g. strawberry, physalis, artichokes, red current, wild apple, huckleberry, bitter gourd, eggplant and broccoli. Likewise, farmers should be encouraged to produce different varieties of a crop (e.g. various varieties of tomatoes as observed in a greenhouse in Tarialan Soum, Uvs Aimag). Diversification may be facilitated by establishing *farmer field schools* or organising seed fairs where interested farmers can get in contact with those that already produce a higher variety. Focus on local horticultural experts and innovative farmers to take up the role of multipliers and innovation agents.
- *Promote the recuperation of old varieties* well-adapted to the local agroecosystems and may hold valuable genetic resources when facing the accelerating impacts of climate change. The efforts of the Uvs Branch of the National Association of Fruit and Berries to recuperate local sea buckthorn varieties should be assisted by providing technical support. The drought tolerance of those varieties is seen as a key production advantage under future climate scenarios and the high oil content is a desired fruit characteristic which accounts for higher market prices than regular berries.

### Education and extension

- *Support governmental extension providers in installing a demand-oriented structure of agricultural extension* which is also free of charge, as the support offered by the local Department of Food and Agriculture currently does not meet the needs of farmers. The GIZ should stress the need to improve the quality and quantity of the public extension service. Sufficient quality may be facilitated by training of trainers approaches that equip the technical extension agents with skills, knowledge and information relevant to the local farming community. Relevance may be ensured by including farmers in the planning of the extension curriculum in a participatory way. An increase in

the personnel resources of the public extension service may be achieved by employing skilled farmers in each Soum on an independent basis. The GIZ could support this by offering (online) training courses on consulting practice to those farmers.

- *Recognise the important role* that associations (Seed producers Association in Ulaangom), the private sector (Uvs Food Company), agricultural educational institutions (Polytechnic College in Ulaangom) or NGOs (Mongolian Women Farmer association) currently play in providing technical guidance to small-scale farmers. To ensure the positive impacts of those non-governmental extension providers in the future, those actors should be taken into account when looking for new cooperation partners for projects related to education and the horticultural sector. Furthermore, local knowledge generating institutions (polytechnic college in Ulaangom, farmers associations, IPAS) should be encouraged to broadcast their information. This may be facilitated by inviting farmers to informative open house days or publishing a yearly booklet on the latest findings or trends.
- *Establish a platform or discussion forum with farmer-to-farmer exchange*, to encourage local producers to share or exchange their knowledge (e.g. on adaptation strategies to climate change). Farmers associations may be a good starting point in order to facilitate such an exchange. The knowledge exchange between experienced farmers and herding dropouts who want to engage in horticulture (e.g. Khovd Pasture User Group Federation project in Buyant) should also be supported. Experienced farmers may benefit from sharing their knowledge by taking on a willing-to-learn herder as an intern on their farm thereby reducing their personal workload.
- *Benefit from the high motivation for horticultural activities* present in the study site and involve the local population through *community participation*. This applies both to people already actively involved in horticulture (e.g. farmers seed fairs or participatory plant breeding) as well as for people with no horticultural experience (e.g. introductory events organised by the co-operatives or farmers markets for vegetables and fruits). By drawing from the lessons learned from JICA's Community Vegetable Farming for Livelihood Improvement Project, the GIZ could initiate a pilot project for *Community Supported Agriculture (CSA)* in Soums without a farmers' market (Buyant, Chandmani, Munkhairkhan, Tarialan). The CSA connects producers and consumers more closely to each other as households subscribe to the products of a certain farmer (or farming community) prior to the har-

vest. Additional to sharing the production risk and establishing social bonds, the CSA model may also hold certain advantages for remote areas with low market access.

### 8.3 Tourism

Before making appropriate recommendations, opportunities and challenges to develop the tourism industry in the study sites were critically reviewed in Chapter 7.8 with a special focus on all sustainability dimensions. As derived from the analysis, there are various existing obstacles hindering the tourism development in Khovd and Uvs Aimag. This suggests that the tourism industry offers some promising chances for additional income and employment for local residents, but it will nevertheless remain a niche market. Bearing this in mind, the following recommendations for future GIZ interventions are based on the study findings and literature research. The proposed interventions for the GIZ particularly aim at supporting the efforts outlined in the Tourism Development Strategy of the two provinces.

#### Tourism monitoring

- *Support the establishment of a tourism monitoring system*, building upon the tourism strategies of Khovd and Uvs Aimag (HDRTC, 2019; UBTA, 2017).
  - *Establish a tourism registration system* at accommodation facilities to improve the data on tourist numbers, durations of stay, origin, organisation of travel and itinerary.
  - *Collect additional information*, such as the average spending, needs and interests of tourists, reasons to travel to the Aimags etc. in order to better match demand and supply in collaboration with Mongolian academia.
- *Assess the environmental carrying capacity* of selected sites with high tourist numbers and/or a sensible environment in collaboration with Protected Area Administration (PAA).
- *Build on experiences of community-based monitoring or visitor impact monitoring* (e.g. taking regularly photographs at the same spot) or visitor experience monitoring applied in PAs in other countries (for detailed information and best practices see Leung et al., 2018).

- *Explore the implementation of a visitor's tax.* This would generate relevant information for further planning and finance for further development of the tourism sector. The introduction of the tax could also help formalise transactions; obligating tourists and tour operators, *ger* camp owners and hotel owners to pay taxes.

## **Routes**

- *Clarify the purpose of and the target groups for the different routes* and develop specific tourism services and products along the routes.
  - *Develop a target-group specific communication strategy* for the routes.
  - *Assess the attractions* along the routes with special focus on the needs of the defined target group.
  - *Focus on a selection of routes*, assessed as most attractive (criteria could be the accessibility of routes and a close proximity to sites) since there is not enough capacity and demand to develop all routes simultaneously.
  - *Support the planning, implementation and maintenance of small-scale tourism infrastructure investments* along the routes (e.g. establishment of picnic areas, *ger* camps, trash collection). Support linkages between private investors and the Aimag government to improve the alignment of investments with the Aimag tourism strategy and the routes.
  - *Link tour operators with the government* to make use of the touristic routes and to link them with local staff. Tourism fairs or stakeholder workshops could serve as a platform. The GIZ could facilitate such exchanges.
  - *Train local stakeholders* (e.g. the tourism associations) on service package development and marketing (e.g. a package of a five-day horse-riding tour in Uvs, incl. accommodation, guides, food, horses).

## **Zoning, spatial planning and permits**

- *Support the (tourism) zoning* of Protected Areas (PAs) to better plan tourism activities in PAs.
- *Restrict or prohibit access* to vulnerable ecosystems and habitats of endangered animals (such as the snow leopard, argali sheep, ibex etc.). This could



be ensured in cooperation with the rangers. For more details on visitor management see Eagles et al. (2002, Chapter 7).

- *Integrate traditional and local knowledge* in the planning of tourist routes and zones (e.g. restrict access to certain sacred places) as well as for the management of pasture grounds and its use by herders during winter months.
- *Integrate herders in the process* as their access to land can be restricted through spatial planning and management. As a consequence, they are forced to enter strictly PAs.
- *Work on the allocation of land use permits* for the construction of tourism complexes (in PAs), as they are currently given to applicants without following a transparent procedure. For improvement, it is advisable to have at least one tourism expert at the PAA or to establish a working group to review and decide on requests based on expertise (G35).
- *Incorporate regulations about the kind and the location of tourism infrastructure in PAs*, in order to minimise impacts on vulnerable sites and its environment as a whole (Leung et al., 2018). For instance, accommodation facilities should not be built directly on or close to the site. Instead, it should be established some distance from the site (G35; Strasdas, 2018; Wigsten, 2005).
- *Promote mobile infrastructures* such as mobile and seasonal tourist *ger* camps to minimise land use change and visual impacts on the landscape.

## Protection of sites and habitats

### *Historical and archaeological sites*

- *Support research on historical sites* in order to assess the value and the vulnerability of the sites to ensure their protection before they are promoted for touristic purposes (P9).
- *Establish Heritage Management Plans* for the main sites and name a coordinator or responsible person in the regional government.
- *Assess the value of rock paintings* and protect them from vandalism and negative impacts from tourism. Only allow specialists and scientists to access the most vulnerable sites. Develop information boards about the history and the vulnerability of the rock paintings. Prohibit visitors to touch the paintings. For further information and examples on rock painting conservation and tourism see Deacon (2006).

- *Develop waste management systems* for the sites amidst considerable and growing contaminations (further recommendations on waste management are listed below).

#### *Habitats*

- *Monitor the impacts related to the intrusion in habitats* of wild animal populations since it is crucial for tourism forms related to wildlife. Therefore, increase the prices for tours or restrict licences for rare wildlife spotting (see MARCC, 2014). Licences should be controlled by the PAA, the Soum or Aimag government. They could be given out to tour operators or individual tourists. A code of conduct needs to be signed before the tour.

#### **Revenue from tourism in PAs**

- *Increase the revenue from tourism* but also make sure that at least part of the revenue stays with the park that generated the revenue (Strasdas, 2017). Revenue from tourism activities could serve as a contribution to the budget of PAs (MNET, GEF & UNDP, 2013). Therefore, it is advisable to follow the procedure developed by MNET, GEF and UNDP (2013): firstly, establish a business unit within the PA administration and secondly, raise entrance fees, improve the fee collection system and collect fees for camping, car passing or for tour operators.
- *Organise training for community groups on the issue of pasture management and governance* (regime building) to ensure that additional income is invested in sustainable activities.
- *Invest a part of the revenue in nature conservation measures* (see camp supported by TNC) and structures that support more vulnerable PAs and/or less-wealthy members of the local community.

#### **Capacity building**

- *Support the implementation of the Khovd Aimag Development Strategy* (2015-2025) through the elaboration of measures, as the Aimag plans to develop and implement a training module for travel management, guide and foreign language training and organise international and regional tourism fair, trade and meetings.
- *Improve the college curriculum* to provide young people with skills to work in the tourism sector. Therefore, the topic of CBT could be added to the course plan (A8), skills in proposal writing must be developed, social media

training should be provided and foreign language skills should be improved to facilitate communication with tourists (English, Russian).

- *Build capacities and inform communities* about the possibilities to access the tourism market in order to supply the local demand. Thereby, specific population groups can be particularly targeted (women, less-wealthy residents etc.).
- *Develop community skills* to improve the ability to manage the expectations of different tourist groups.

### Marketing and advertising

- *Consider an information campaign* to boost domestic tourism to the Western Aimags, as marketing and advertising are critical to access a broader group of people.
- *Make information material available* online and in provincial information centres in English and Russian. Specific recommendations on hotels, restaurants, and attractions could attract travellers and has high potential to contribute to local value creation.
- *Enhance local/regional value creation and participation* by greater market integration, as tour operators oftentimes skim-off the profit. For instance, this can include a fair cooperation between tour operators with local entities (e.g. balanced agreements with accommodation facilities).
- *Preserve authenticity in terms of cultural heritage* (food, clothes, traditions, housing). It is a unique feature and is most important to attract tourists. A respectful and authentic representation of the local communities is crucial to prevent the construction of romanticised images of the herding lifestyle.

### Events and festivals in Western Mongolia

- *Expand the opportunities for value creation during festivals*, e.g. charge admission fees, extend the sale of foods and beverages and other local products to allow the community members to participate in the generation of additional income, arrange and charge for local transportation to the venues and heritage sites, offer horseback or camel riding, charge for taking special pictures. To promote consciousness about healthy and locally produced foods, a combination of touristic festivals with horticultural products, such as the sea buckthorn festival, could be beneficial.
- *Match the programme to the expectations/needs* of domestic and international tourists e.g. ensure some kind of interaction with local people, in-

volve tourists to build up a *ger*, provide seating possibilities in the shade during the festival etc.

#### *Tourism fairs*

- *Enable the participation of the Western Aimags* in the annual National Tourism Fair. Cooperation with national tour operators for selling the routes as a set product should be ensured (UBTA, 2017).
- *Provide information of the Western provinces* at the International Tourism Fair (ITB) in Berlin for international tourists.

#### *Web page*

- *Improve the web presence with own distribution channels.* A common webpage for the Western region could be established to promote the region as a whole (as planned in HDRTC, 2019; UBTA, 2017).

#### *Social Media/Facebook*

- *Train people involved in tourism about the basics of marketing.* Social media and other online tools are important as they provide updated information about maps, attractions, events, hours of operation and contact details. Young people in particular could be considered for capacity building.

#### *Info points/signalisation/travel guides in Western Mongolia*

- *Extend the current tourist information system.* Local tourism information centres are essential to advertise and inform about tourism destinations within each Aimag. Those should provide promotional material in Mongolian, English and Russian. This could include brochures, maps, attractions and hours of operations of sites. In both Aimags, information centres were not yet running in the summer 2019. Popular Soums and PA officials could define a contact person who can provide relevant travel information upon arrival (accommodations, events, contact to guides, performers (dancers, singers, etc.). This would create an additional income source and facilitate access to all type of services.
- *Set up signposts within the Aimag centres* in Mongolian, English and/or Russian language to inform tourist about attractions, cultural sites, itineraries, and activities.
- *Develop a branding strategy* to promote the Aimags as unique products (cf. UBTA, 2017). To compete with other provinces on the international tourism market, it is necessary to define a distinguishing feature and to turn this into an advantage. Possible options were already identified by the Aimags

Development Strategies. Hence, it is advisable to support the government in the implementation of measures to enhance brand awareness. Additionally, a local brand could be developed for certain Soums based on their specificities. For instance, mountaineering, the production and sale of a certain types of souvenirs, throat singing shows, special geographical features, popular places wildlife watching, trekking etc.

- *Develop a certification system* to set standards and help certify ecotourism and sustainable tourism businesses.

### **Policies and coordination**

- *Design and support the establishment of a government programme* to develop CBT. An important prerequisite for this is a long-term approach over multi-year project timelines and funding mechanisms (up to ten years). Furthermore, more state budget needs to be allocated to the establishment of CBT.
- *Strengthen sustainable tourism* by informing Soum governments or PAAs about fundraising possibilities regarding nature conservation or social project.
- *Raise awareness among tourists* about local projects and to potentially receive additional support (e.g. planting trees in Chandmani Soum for reforestation purposes and sequestration of carbon).
- *Improve the functionality of tourism associations.* Ensure they also represent local communities and not only the private sector.
- *Increase the collaboration of associations* on regional level between the Aimags.
- *Enhance the coordination between different donors* (e.g. ADB, WWF, TNC) and different GIZ programs, e.g. through stakeholder workshops or network meetings (see Laurie et al. 2010, p.337).
- *Improve the coordination between state institutions* (MoET, DET, PAA) to ensure the coherence of policies. The collaboration between MoET and DET is insufficient due to frequent change of government (G35). A working committee to hand out licences for *ger* camps in PAs would be needed to ensure the satisfactory processing of the requests within an acceptable time frame. Therefore, it can be considered to employ a tourism specialist at PAA.

- *Collaborate with the private sector:* Increase linkages between communities/local guides/cooks etc. and tour operators (e.g. via fairs, workshops or platforms such as Indy Guide).
- *Engage in regional collaboration* between Aimags: Support the development of a common tourism strategy for Western Mongolia, e.g. align the dates of events and develop unique selling points of the Aimags and provide local transportation for tourists who pay small fees to visit different attractions.

### **Target group specific products**

- *Adapt the offers to the corresponding demands* of the customers based on the results from the monitoring (see above), since the interests and needs differ between the target groups (for a detailed description see Acorn Tourism Consulting Ltd, 2015).
- *Identify tourism hotspots* based on visitor numbers and make a detailed tourism management plan for these places (roads, zoning, spatial planning with regards to infrastructure, toilet facilities etc.).
- *Identify further bottlenecks* with regards to tourism. Supply and connect these Soums/PAs with tour operators to organise e.g. target group specific tourist program.

### **Waste and water management**

- *Raise awareness* through training on negative impact assessment and monitoring for all actors involved in the sector (communities, local government, private initiatives etc.) (Sereeter, 2013).
- *Promote regulations* and encourage local businesses to control and reduce water pollution, solid waste, energy consumption, and water usage. The measures should be advertised in a way that attracts the large, environmentally sympathetic tourist market (Acorn Tourism Consulting Ltd, 2015).
- *Request tour operators to reduce the amount of disposable goods* that either contribute to the solid waste problem or which are hazardous and impede an appropriate and safe disposal (ibid.).
- *Discuss with the community about feasible solutions* to sustainably dispose human and solid waste (ibid.).
- *Encourage recycling* and manage all forms of waste disposal carefully. The principle is to take as much waste away from the site as possible (WWF International, 2001).

### Safety

- *Make pre-travel advisory information* on customs, behaviours, norms, taboos available to tourists so as not to jeopardise local nature or custom.
- *Ensure availability and capability of lifeguards* in different locations, e.g. at lakes. Therefore, additional training of local residents may be required.
- *Ensure availability of rescue equipment* and the knowledge of its application.
- *Ensure access to basic medical services* and clean water supply.
- *Make training in food hygiene standard.*

### Community-based tourism

#### *Supporting the establishment of further CBTs*

- *Find the right timing for CBT development.* To ensure local value creation, communities should be involved before tourism becomes widespread (Nault and Stapleton, 2011, p.697). The appropriate time frame must be considered according to the local context and location.
- *Identify the location of tourist camps* based on tourist demand and zoning regulations. Tourist camps close to main (tourist) roads are most likely to receive more visitors. The limited accessibility to remote areas is a hindering factor for tourism development, especially if there are no unique tourist attractions. It is advisable to focus on criteria such as accessibility and uniqueness to select new locations. It is advisable to create a linkage between various CBT camps to establish a growing network.
- *Enhance the offers and/or quality* in terms of accommodation, restaurants, retail stores etc. of the hospitality industry in the respective Soum centres.
- *Develop a business plan/strategy* (business model canvas) before establishing a CBT, which includes an assessment of the tourism demand, a marketing strategy and product offers
- *Pursue a long-term approach*, it is a precondition as capacity building takes a long time, certain standards need to be introduced, the market needs to be build, good quality services need to be provided etc.

#### *Collaboration between groups, donors, private and public sector*

- *Collaborate with local institutions* (governmental or non-governmental) early on to avoid donor dependency due to short-term project duration (Goodwin & Santilli, 2009).

- *Establish a network of CBT in Western Mongolia*, as this could inspire tourists to stay multiple nights at different locations or attract more visitors who want to travel to the region. This could be promoted by the local governments as it should be in line with the routes (see above). Suggestions for travel itineraries (that must be online) would provide guidance for individual travellers.
- *Support the linkages between CBTs, tour operators and platforms*. Actors, strategies and tools could be presented during the tourism training which is organised by the government.
- *Support joint ventures* and private sector investments by bringing stakeholders together especially with regards to lodging or tour programmes, to enhance employment, conservation and community benefits (Goodwin & Santilli, 2009).
- *Make use of the Tourism Association* as a linkage between communities and other stakeholders active in tourism. Through better networking and coordination, knowledge and practical experiences can be shared to learn from other countries/regions (O10), e.g. exchange with Kyrgyzstan where CBT is quite well developed (I10).

#### *Group composition and ownership*

- *Encourage existing groups to identify and follow their own codes of conduct*. Principles such as one person one vote can be introduced to ensure balanced power relations among people with different endowments. This can be useful to minimise the risk of excluding unprivileged group members according to certain characteristics (wealth, age, gender, locality, origin etc.).
- *Establish a sufficient level of ownership* of processes to ensure the functionality.
- *Make use of the summer time when building new community groups*, it is ideal for gathering herder households when they converge near rivers. There is a tradition that each family provides one *ger* for the elder son. If he is not married yet, this *ger* is spare. The herder group could use the extra *ger* to receive tourists. Some families have an extra *ger* which is mainly used for young cows and lambs when they need a shelter during the cold times. If the quality is good, it can be used for tourists during summer times.
- *Build on existing institutional structures* where mutual trust exists, instead of creating new groups (there are already many groups that have been established by other donors).



### *Local value creation*

The focus should be on *improving existing conditions* to get more out of current visitors instead of increasing the number of visitors.

- *Improve the local food production and processing* for higher value creation, e.g. by offering different meals including vegetarian/vegan options in local restaurants and *ger* camps.
- *Encourage tourist organisations to cooperate with local suppliers* such as herders or small-scale farmers for the provision of meat and dairy products, vegetables, fruits, berries and beverages to establish a market for local products. Quality standards need to be met. Reliable delivery of products to facilities is needed for a good and long-lasting cooperation
- *Promote the touristic sale of wool products* made by herder households. It is advisable to create sale opportunities within the facilities. An extra *ger* could be used as a salesroom.
- *Integrate residents in the centres* through the operation of retail stores and possibly expanding the range of products.
- *Develop a price mechanism* to avoid destructive competition caused by price wars among CBTs. This could be initiated and monitored by the Tourism Association.
- *Charge a fee for camping* when located next to tourist accommodation and/or if facilities are used.

### *Tourism products and promotion*

- *Identify and promote distinguishing features of CBT groups.* This may include unique merchandise and souvenirs that cannot be replicated anywhere else.
- *Support the development of a booking system.* The booking process needs to be improved to entitle hosts to withhold the deposit if cancellations occur at short notice. Therefore, available online marketplaces such as Airbnb should be reviewed and evaluated with regards to the applicability in this context.
- *Promote CBT via social media.* Therefore, at least one person from the community should be provided with the required skills. Internet access is mandatory.

- *Make special offers as part of CBT* such as guided excursions, handicraft workshops, transport, sale of meals and crafts, and visitor education on culture to protect and bring value to local communities and traditions.
- *Ensure a minimum level of quality and comfort of gers* to comply with the tourists' needs including suitable beds with comfortable mattresses. Therefore, CBT groups should be informed how to access tourism offers.
- *Offer training on business development and marketing* through the development of technical manuals or training with experienced staff.
- *Invest in saddles and helmets with regards to horseback riding activities* to improve the security of the guests. A guide with local knowledge should accompany the tourists to ensure their safety. The training of horses needs to be ensured, matching the riding abilities of the tourists.

#### *Access to finance*

In general, funding should only be assured if there is an adequate market for the initiative to be successful and hence economic sustainability can be ensured (G35; Goodwin & Santilli, 2009).

- *Develop customised financing solutions* to establish or improve the accommodation facilities and other tourism offers.
- *Transfer knowledge about available donor agencies* as well as writing and submitting project proposals to the local people. Currently, project proposals are submitted to the local government. Some proposals might be forwarded to other donor agencies, as there is no government budget. The submitting parties do not necessarily receive a response.



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## 10 Annexes

### Annex 1: Further aspects of physical capital

#### Housing (shelter), water supply and sanitation, electricity

“An important determinant of the quality of life is the type of housing and access to basic infrastructure services such as improved water sources, improved sanitation, electricity and heating. With this, a household’s prospect of moving out of vulnerability and poverty increases and its members’ productivity is improved.” On the other hand, “unimproved water sources and sanitation facilities can have a direct impact on well-being and health through an increased risk of disease outbreaks and resulting financial risks. Likewise, insufficient access to electricity can limit education and investment opportunities” (NSO, 2017, 40). In this light, it is alarming that while “87.9 % of all urban dwellers have access to all three [and higher quality of (IOM, 2018)] basic services, in contrast, barely 44.7 % of people in rural areas” do, mobile herders in particular often lack access to improved water supply and sanitation and the “poor’s expenditure for heating are proportionately higher.” Overall, “households that do not have access to such services were poorer than those that do” and the poverty rate is especially high with households living in gers, slightly lower with the households that live in detached houses and lowest with those living in apartments in Mongolia (NSO, 2017, 40-43). Only in electricity provision, improvements have been made in recent years, as almost all households in rural areas are now using solar energy (NSO, 2017) – which was also observed among interviewees in the study region. Moreover, a study about living standards and productivity among mobile herders in Mongolia showed that they often did not have enough income in order to invest in physical capital – while the *ger* is often inherited, “durable consumer goods” were often not affordable, with only 10 % of herder households possessing the same assets like an average household from urban areas. A majority of mobile herders thus named sanitary devices, improved water supply, and more durable *ger* interior, and equipment which could ease their daily life’s workload (e.g. washing machine, electric heater, fridge) as desirable (Tießen, 2018).

#### Information and communication technologies (ICTs)

A lack of physical capital in the form of the afore-mentioned assets might be interlinked with migration in Mongolia, as the IOM (2018, 5) finds the “desire for improved living conditions” is a main driver of rural – urban migration. The



importance of a good quality of life was indeed also observable among rural households in the study region, especially among younger people. This was e.g. highlighted by the head of the Youth Federation in Uvs who argued:

*"As part of my job I talked to 100 young people in nearly all Soums of this Aimag. Most of the young herders do not want to move to the Aimag or Soum centre. Things changed for them. Now they have solar panels, TV with a lot of channels, a fridge, a smartphone... anything you also have in the Soum centre. When we were younger, we had to eat rotten meat because there was no cooling. Now herders can have a fridge. In general, young herders are very happy with their living situation. There are just two things they are missing: Entertainment services, like good wifi, information, magazines at the bagh centres, and pre-school and kindergartens, so that their children do not need to stay alone in the ger when their parents are outside herding."* (O21)

Indeed, young people themselves stated that they would like to stay in the rural countryside if there were higher living standards, more physical capital and better services like a *"paved road, support for SMEs, a processing plant, opportunities for education, public showers, a sports gym, and a place where they can spend their free time"* (L10 – youth focus group discussion Munkhairkhan) such as *"a garden for working and a children's park for playing... Chandmai should become more like Khovd"* (L21).

In this regard, ICTs especially was found to play an important role for young people in order to stay informed and connected, with positive progress regarding its infrastructure observed in some Soums: *"We have three different mobile telephone providers now. And we have internet connection and electricity. There was no electricity when we were younger"* – while there was still a lack of it in others – *"internet connection is not sufficient. Also, employment is lacking"* (I10). Indeed, the spread of ICTs seems to present good prospects for rural areas, as a Mongolian specialist from the IOM states: *"Times are changing. When I was young, there was a lack of opportunities in rural areas, no internet, communication, etc. – today, with all this modern technology – communication is better, so at least this development opens up opportunities in rural areas, to getting information also there"* (I12).

In this light, it might be a potential that internet coverage in Mongolia was 81 % in 2015 (UNDP, 2016) with however only 16.2 % of all herder households using the Internet, while at least 85 % of the herders possessed a mobile phone which they used for receiving information about prices or the weather, reading the news but also staying connected, especially in times of health issues or problems with their animals, as well as for entertainment (SDC, 2017). Especially

social media like facebook appears to be a way of reaching out to young people but also herders, as 80 % of youth in Mongolia were connected on the platform (UNDP, 2016), while it was also the main use of the internet by herders (SDC, 2017). Thus, it potentially presents an entry point in reaching out to these groups. However, it must be considered that the poorest were found to spend much less on ICTs (NSO, 2017), thus there is a risk of social exclusion via this channel of communication.

## Annex 2: Description of the institutional environment

### Organisations already working with identified potential target groups

Future donor projects, e.g. by the GIZ, targeting the most vulnerable groups – women, youth, unemployed, poor, and herders with few livestock – might work not only with governments and sector agencies but also with other agencies and organisations already supporting and working with these groups as these hold valuable knowledge about their needs and challenges: The respective Departments of Labour and Social Welfare in Uvs and Khovd, the Public Development Agency for Youth, Children and Family, the Youth Federation and the Women Association in Uvs, as well as the Department for Social Policy in Khovd are examples and their programmes, activities and strategies are described below.

#### *Khovd – Department of Labour and Social Welfare (G9)*

The department recorded an unemployment rate of 10.1 % in Khovd Aimag, with 4.000 people officially registered as unemployed job seekers. However, due to lots of unregistered unemployed the true number is expected to be much higher. Moreover, 60 % of the registered unemployed were youth (15-34). The department runs a work-matching programme with the private sector, through which 629 job seekers were provided with a job since the beginning of 2019, with a majority of them placed in the construction or mining sector (51 % youth) and 80 people placed in the crop sector. Further, the department is implementing the nationwide strategy of the National Employment Council, which includes six support programmes for different groups:

1. *Training and education for unemployed people:*

People who are interested can sign up to participate in certified training centres which provide vocational training.

2. *The "Sustaining Job" programme (for people age 35 to pension):*

This programme offers low-interest loans of up to five million MNT. The department encourages locals to engage in crop production. Work is done in small groups on overall 5 ha of public land. Participants (this year 63) do not have to invest anything, they just come and work, as the department provides everything needed, including seeds and equipment. Although demand is high ("much higher than 5 ha"), few continue crop production after the programme is over.

3. *Support programme for youth (age 15-34):*

This programme offers 100 million MNT to support start-up businesses. It includes a 3-day training on how to write a proposal. Up to 10 million MNT of low-interest loans are then given out per group/start-up. In 2017/18, the SDC even gave out unconditioned support. However, in 2019 only 18 young people in five groups were supported overall. Only rarely (~1/year), horticulture or tourism start-ups apply.

4. *Herders employment programme (young families age 18-45):*

This programme supports herder households with less than 200 sheep heads or without any livestock. Loans of five million MNT are given out in the form of new livestock. As described in other chapters, this programme was reported to cause even higher debt in some cases, as livestock is repeatedly lost and after three years 100 % of the loan needs to be paid back.

5. *Programme for disabled people and families with disabled members:*

Provides loans of five million MNT with a required payback of 100 % after four years.

6. *Senior professionals consulting programme:*

Senior citizens share their knowledge with young people.

*Regarding tourism*, the department stated that few unemployed were interested in it, as they did not know about it or did not see how they could be employed. However, the department cooperates with the yearly Tea Road Festival, where they encourage people with a business (handicrafts or food products) to engage and advertise. *Regarding horticulture*, some unemployed are reported to participate in the programme connecting them with training centres like the local college in Khovd which offers two trainings per year.

*Uvs – Department of Labour and Social Welfare (G28)*

Like in every Aimag, the department in Uvs implements the six support programmes of the National Employment Council. In Uvs, 1.062 people are currently searching for jobs, 50 % of them youth under the age of 35. Like in Khovd, the target groups include youth, herders, retired and disabled people, however, there is no specific programme for women. In order to tackle youth unemployment, they established a facility where training – designed by SDC – is offered to e.g. develop soft skills. However, only 15 young people participated in it this year and in general, youth was found not to be very interested, as they prefer services like career counselling as they would rather work than participate in further training.

*Regarding horticulture*, they would like to promote the expansion of the sector through the promotion of processing factories and private sector development,

but funding is lacking. Currently, they offer loans to SMEs winning in proposal contests, oftentimes including SMEs from the crop production sector. They believe that subsidies for larger companies in this sector could create more employment. The biggest issue in the sector is seen in its seasonality. Moreover, they started to have proposal contests also on the Soum level (10 million MNT each), but aside from Tarialan, no sufficiently good or creative proposals were submitted thus the fund was not fully used up. Their collaboration with SDC will end in 2020. *Regarding tourism*, there is no communication or collaboration with stakeholders from this sector yet. However, they think that capacity building would help to target youth, as they currently do not have any imagination about what the tourism sector is and how they could work there, yet. Also, initial funding, not loans would be needed, as youth strongly resists prospects of debt. *Regarding herders*, they run the same programme as in Khovd. Here, they support 60 households with a live-stock loan, but there are 1.118 households in this category with less than 200 live-stock and younger than 45 years, who they believe should be targeted and could be employed in tourism if trained.

#### *Uvs – Women Association Ulaangom (O8)*

The Women Association was established around 100 years ago and is organised as an NGO “serving the public good”. Its aim is to increase the social participation and empowerment of women in society, strengthening them through capacity building, protecting their rights and promoting them into decision making positions. It is currently focusing on the promotion of products from herder women who live remotely. Further, they work with some women who collectively grow and process (conserve) vegetables and handmade berry juice. In the future they would like to promote women cooperatives to reduce the workload for individual women and generate more income for them. They see an issue in both the horticulture and tourism sectors where a majority of the working staff consists of women. However, the decision power largely still lies in the hands of men. They work especially with marginalised, poor women who need help and trust the Women Association more than public organisations. Besides income opportunities, they believe that larger kindergarten capacities are needed. They would like to strengthen social safety nets for unemployed women and revive a children’s fund which lacks funding. They are well connected with other organisations like the Women Association of Business Owners, the Youth Federation, training centres in Ulaanbaatar, and many more.

*Uvs – Youth, Children & Family Public Development Agency, Youth Federation (O21)*

While the agency was only recently established in 2016, the federation was established 100 years ago. The agency focuses on young families, youth, and children – their upbringing, education and employment (also women) in cooperation with the Department of Labour and Social Welfare. They directly work together with the target groups (especially women and youth of low-income households), e.g. by organising training and acting as a bridge, connecting them with actors who provide low-interest loans and information about opportunities. Currently, they are working on resolving the mismatch between youth's career/education choices and available job positions on the market (see Chapter 5.1.1 and 5.2). As youth hold unrealistic expectations about the availability of office jobs, they are working on changing those false hopes and advocating for more practical jobs, e.g. through a programme which promotes college over university education through a stipend of 100.000 MNT per month. They found this programme to work successfully as the number of students receiving a more practical education at college is growing each year. Even some university graduates have joined the programme.

*Khovd – Deputy Governor for Social Policy, member of the Mongolian Women's Federation (G21)*

In Khovd, the government provides support to women via the Soum development fund: 60-70 % of beneficiaries receiving support are women with 30 % in businesses, 20 % in public services, 10 % herders, and 20 % unemployed. Moreover, investments are made into specific sectors (e.g. beauty spas) to promote job creation for women. Single mothers especially are supported through the fund with low-interest (3 %) loans. The programme is currently supported by WorldVision and the Norwegian Development Agency, providing sewing equipment, housing (*gers*), and food for children – in the past three years, more than 13 charity organisations have supported about 2.000 women and children. Regarding potential employment of women in *horticulture or tourism*, they believe that 30-40 % of women would be interested in working in these fields. Women above the age of 40 could work in horticulture. Other urgent issues however included the need for improved support of victims of domestic violence and the increase of number of schools and kindergartens so that women can return to their jobs sooner.

### **Donor organisations and donor coordination**

In the sense of donor coordination, future GIZ projects should not only be in line with the strategies of the government but also coordinated with other donors active in the region as there are various actors with experiences and efforts with strong commonalities to possible future GIZ projects. Thus, a further coordination is highly recommended. Some of the most relevant donors and their activities, including the Asian Development Bank (ADB), UNDP Mongolia/the Adaptation Fund, the Group for the Environment, Renewable Energy and Solidarity (GERES) and the Swiss Development Cooperation (SDC) are described here.

#### *UNDP Mongolia/Adaptation Fund*

From 2012 to 2017, UNDP Mongolia implemented the “Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchment in Mongolia” Project. It introduced various climate change adaptation measures in several Aimags, including Uvs, e.g. the introduction of greenhouses, drip irrigation, rainwater harvesting, irrigation channels for vegetable production, solar drying of fruits and capacity building on organic agriculture – as shown in later chapters, all highly relevant topics for this study and future possible GIZ projects in the horticultural sector. Further, sustainable pasture management and protected areas were introduced which could be relevant to the tourism component. The evaluation of this programme showed that the measures were highly satisfactory and thus UNDP highly recommends other donors in the region duplicate them as best practices. (Adaptation Fund, 2015; UNDP, 2017)

#### *Group for the Environment, Renewable Energy and Solidarity (GERES)*

GERES has implemented several projects in the vegetable sector in the Central region of Mongolia. Passive solar greenhouses which can also be used in winter are an integral part of their holistic approach which includes vegetable storage systems and capacity building (GERES, 2018). In this light, it seems highly relevant to consider their experience for future projects in this field. Their greenhouses are further described in Chapter 6.2.4.

#### *Asian Development Bank (ADB)*

As reported by the head of the Department of Investment and Policy Planning in Khovd (G7), the ADB is very active in the region: Firstly, it has been involved in setting up development plans for all Soums up to 2030. Secondly, a comprehensive study about complementary income sources for herders was conducted in 2018.

Thirdly, the ADB decided to provide Khovd with so-called “agro-parks” which are particularly relevant for the horticultural sector. The agro-park project has an investment sum of USD 120 million and there are five agro-parks planned – two near the Khovd Aimag centre, one in Buyant, one in Bulgan, and one in Mankhan. The idea behind agro-parks is that they should combine all kinds of agricultural production – both livestock and crop production (vegetables, berries, fodder). All herders should provide their livestock products to the agro-parks and in return the agro-parks should provide them with fodder. Farmers should be part of the agro-parks as well, as there will be plots for fine vegetables, greenhouses and processing plants for vegetables, further, many hectares of wheat and fodder production are planned, 500 ha are already being prepared for this. Both herders and farmers (also poor ones) are planned to be provided with stable employment all around the year, also in winter, as they can work in the leather and cashmere processing plants during this period. Meat will also be delivered by the agro-parks where higher quality standards will be implemented. It will be prohibited to sell directly in the city without this standard.

Thus, almost all food products for the local population shall be provided through agro-parks. Currently, the project is still at the compiling stage, so there is no information on water and energy supply yet. The project duration is planned to be ten years until 2029. The parks are supposed to be owned partly by the government, but farmers and herders will have shares and operate them like a company. The idea came up that agro-parks could also be combined with tourism (G7). Meanwhile, in Uvs, there are also plans for agro-parks according to the head of the Department of Investment and Policy Planning (G2). In Uvs, the programme will have an investment sum of USD >50 million with plans for one agro-park near Ulaangom and further infrastructure for Soum centres. A study about complementary income for herders exists here as well.

Further, the ADB helped with defining the seven priority sectors of the Aimag government which include sea buckthorn plantation, crop production (with a focus on wheat production) and tourism, but also livestock products and mining (G2). Further, the Japan Fund for Poverty Reduction is implementing the “Mongolia: Community Vegetable Farming for Livelihood Improvement” Project through the ADB. This project aims to set up community vegetable grower groups and provide them with summer greenhouses in the Central region, while another component aims to support seed producers near Ulaangom, e.g. by setting up a winter greenhouse there (JFPR, 2017). Meanwhile, Khovd will not profit from the large, nationwide ADB “Water Sector Investment Program” which promises the construction of 30 new irrigation systems in Mongolia, as the head of the River



Basin Administration reported that Buyant – which applied for it – was not chosen as a target Soum (G18). While further information about the planned ADB projects was not yet received at the time of the composition of this study, there appear to be many commonalities with possible future GIZ projects. Thus, an increased co-ordination is highly recommended.

### *Swiss Development Cooperation (SDC)*

The Swiss Development Agency has longstanding experience in Mongolia with a special focus on sustainable rangeland management (see “Green Gold” Project). As more than 70 % of herders in Western Mongolia are members of Pasture User Groups (PUG) created by SDC (O3), any future donor project working with herders needs to consider these organisational structures, especially as criticism about parallel structures created by donor organisation has already been raised by some Mongolian experts who find that *“herders don’t know anymore where they belong in terms of administration”* (I2). Moreover, future donor projects might be able to learn from or build on existing SDC projects. One Example is local PUGs in Buyant have implemented a project which helps herders, who have lost their livestock during *dzuds*, to become farmers. There, they work with 25 (former) herder households who are now starting to grow vegetables and are taught farming knowledge by local, experienced farmers (O3). Further, the PUG Federation in Khovd also runs a tourism programme called “herder-to-herder”: A community group of 20 herder households in Munkhkhairkhan receives around 50 tourists from Switzerland and the Netherlands each year during *naadam*, hosting them in their five *gers* with each *ger* offering a different theme teaching about Mongolian culture. As the herders are very satisfied with the initial experience, they would like to expand the programme in the future (O3).

Additionally, the SDC runs the Inclusive and Sustainable Vegetable and Marketing Project (VEGI) which promotes backyard vegetable gardening (often with the help of greenhouses) for women in the central region who also receive training and cooking lessons for vegetable self-consumption (O20), the importance of which is highlighted by the fact that Mongolian households with better educated women consume significantly more vegetal fats and vitamin A (Lehmann-USchner, Krähnert, 2017). Indeed, the project reported to have seen various health and empowerment benefits for women through their activities. Further, they have seen great results in working with people with diabetes, as *“they started moving and eating healthier once they learned how to grow vegetables on their own”* and even experienced a few cases among the project participants in which domestic violence against women was reduced (O20). While the project is implemented in

the Central region of Mongolia, it may still offer valuable lessons and also has a component in Ulaangom where it cooperates with the Seed Producers Association (O16) in order to improve the quality of vegetable seeds in the region and entire Mongolia (O20).

### **Policies and strategies of government on various levels (national – local)**

Government policies and long-term strategies on different levels (national, Aimag, Soum) relevant for the two studied sectors horticulture and tourism, are described in the respective Chapters 6 and 7. More general development plans – like the “Mongolian Sustainable Development Vision 2030”, the “Action Program 2020”, the “Green Development Policy”, and the “10-year Green Aimag Development Plan” – which create a framework for the development of livelihoods in the study region – are outlined here.

#### *Mongolian Sustainable Development Vision 2030 (MSDV2030)*

The MSDV2030 was adopted as Mongolia’s long-term national development programme in 2016 and was approved by the National Development Agency (NDA). It is “responsible for developing a comprehensive development policy and planning the main strategy for foreign investment in Mongolia” (JICA, 2017a, 46). It is composed of four sections: Sustainable Economic, Environmental, Social and Governance Development. One main aim is the diversification of the economy. Therein, the seven priority sectors are 1. Agriculture and Livestock, 2. Tourism, 3. Industry, 4. Mining, 5. Energy and Infrastructure, 6. Macroeconomy, 7. Favourable Business Environment (JICA, 2017a). It aims to increase the fertility and repair of soils, reducing land deterioration, adopting economical and efficient advanced agro-technical and irrigation technology. The result of this may be developing intensified farming in order to meet the domestic demand for grains, potatoes and vegetables, introducing advanced technology in the food industry, improving competitiveness, increasing domestic supply in main food products, and ensuring the supply of citizens with healthy and safe food products (JICA, 2017a, 49).

#### *Action Program 2020 (AP2020)*

The AP2020 was adopted in 2016 as a mid-term development strategy. It is composed of five sections – Overcoming Economic Difficulties, Ensuring Sustainable Economic Growth, Social Policy, Environment and Green Growth, and Governance. The second component specifically contains relevant programmes for agriculture, like the “Healthy Food – Healthy Mongolian” programme and “Third Crop Rehabilitation Campaign” including the “Vegetable, Fruit and Berries” and the “Industrialization 21:100” programmes. They aim to increase manufacturing

productivity through value chain approaches which improve the competitiveness of the food and agriculture sector and create an environment for Mongolian citizens to consume healthy and safe food through the promotion of food preparation, processing, storage, and transportation. Further, the establishment of 100 factories related to agricultural and processed products in 21 provinces is planned in order to revitalise local economies through decentralisation of production, and to promote import substitution and exports. Therein, relevant horticulture and tourism activities and legislation include the Law on Mongolian Organic Food and the National Sea Buckthorn and Food Safety programs (JICA, 2017a, 54).

#### *Green Development Policy (GDP)*

The GDP was adopted in 2014 and comprises two periods – phase I from 2014-2020 and phase II from 2021-2030. Its aim is “to advance Mongolia’s national development in an environmentally sustainable manner, building the conditions for future generations to benefit and gain in the long-term and to ensure environmental sustainability through creation of growth based on green development concepts and through citizens’ participation and inclusiveness.” Next to the “promotion of resource efficiency, environmental protection and clean technologies”, it also includes the “adaptation of livelihoods to climate change” and eco-tourism (MoET, 2016, 11).

#### *10-year “Green” Aimag Development Plans*

As part of the NDA’s “Regionalized Development Policy”, which sees the agriculture sector as “keys to regional development” (JICA; 2017, 46), for each Aimag, 10-year “Green Development Plans” have been set up. In Uvs, it was approved in 2019 and includes a SWOT analysis of each sector and in the agricultural sector focuses on irrigation system improvement, crop production cluster development and animal husbandry intensification, while in tourism, foci are human resource development and infrastructure (O13; Uvs Government Office, 2019). Meanwhile, the plan in Khovd was set up in 2016 but was not available in English for the agriculture sector, while the tourism sector featured similar strategies like in Uvs (O13, Khovd Government Office, 2016). The Aimag Development Plans are then adjusted to each Soum and communicated to the citizens by local Sustainable Development Councils (O13, G2).

#### **Strategies of executive agencies at various levels (national – local)**

Executive agencies and their strategies influence the livelihoods of the local population through setting a framework for their income generation activities or directly supporting or neglecting different groups. The activities and strategies of

relevant agencies for the two studied sectors, including the National Development Agency (NDA), the Ministry of Food and Agriculture (MoFALI), the Ministry of Environment and Tourism (MoET) in Ulaanbaatar and the respective departments in Uvs and Khovd are thus referred to in the respective Chapters 6 and 7.

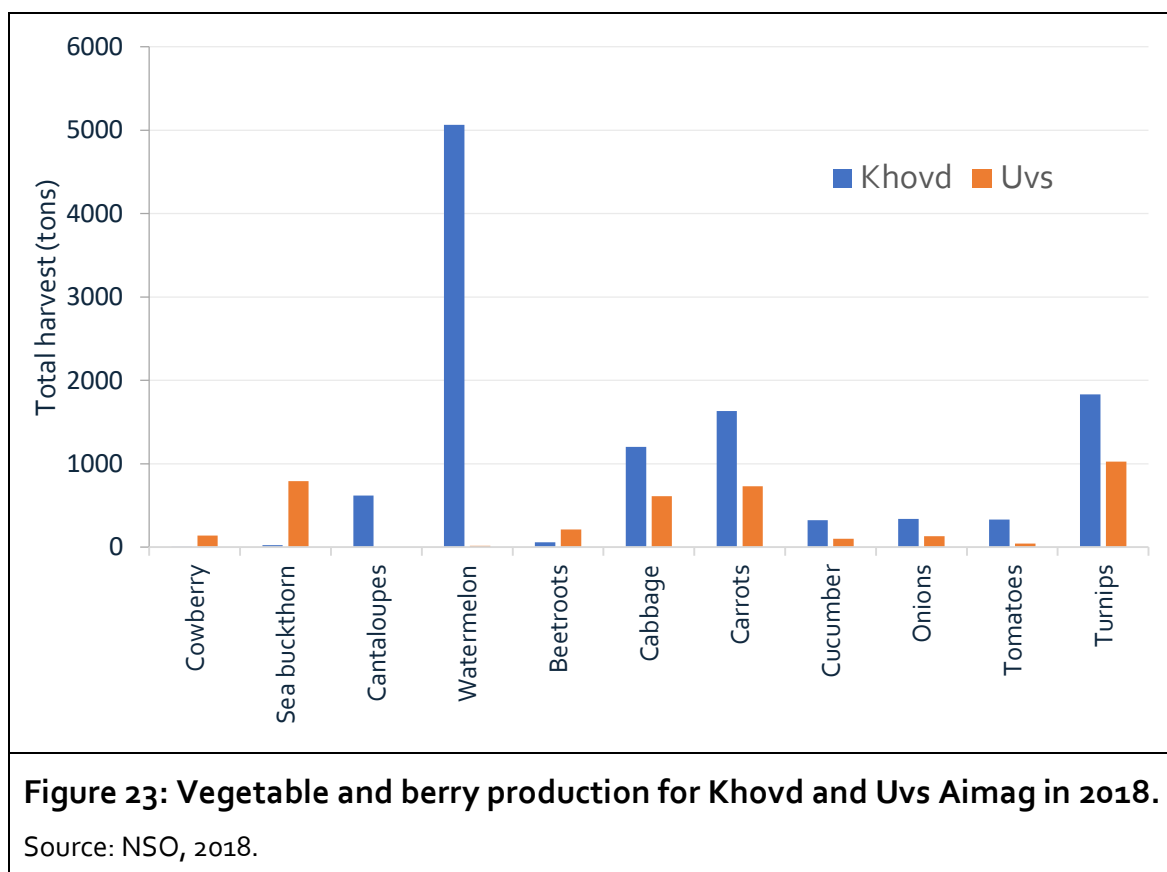
### **Other relevant public, quasi-governmental, private institutions**

The role of other organisations which can have an important influence on livelihoods in the project region – like cooperatives and associations, the River Basin Organisations, Water User Groups, the Agricultural extension service, Research Institutions and education centres like Khovd University, Polytechnic College Ulaangom, as well as NGOs and the private sector – is discussed where relevant in further detail in the respective chapters about horticulture and tourism (Chapters 6 and 7).

### **Annex 3: Land law of Mongolia**

According to the constitution of 1992 and the Law on Land (last amended in 2010), in Mongolia, land is the property of (“owned by”) the state but citizens may “possess” – meaning to be in legitimate control of the land in accordance with purpose of its use – or “use” – meaning undertake a legitimate activity on – it as family living site, farmland and others (e.g. construction). Meanwhile pastureland, land with forest or water resources and wells are excluded from this as they cannot be privatised, being commonly owned by the people of Mongolia. Citizens, companies and organisations possessing or using land are to pay a land fee and possession may be given with a license for the duration of 15 to 60 years. Regarding the use of land, “judgment is made in the provinces”, but the central government judges the demand for large scale land use (JICA, 2017a, 75).

## Annex 4: Vegetable and berry production data



## Annex 5: Overview of horticultural extension service providers

Table 5: Overview of horticultural extension service providers.		
	Extension provider	Activities
Research institutions and agricultural universities	IPAN MULS Polytechnic college UG	<ul style="list-style-type: none"> <li>- testing varieties and technologies</li> <li>- offering undergraduate and graduate degrees in crop production</li> </ul>
Public extension services	Aimag and Soum branches of the MoFA	<ul style="list-style-type: none"> <li>- implementing national projects</li> <li>- providing loans for inputs and equipment</li> <li>- organising training on farming practices</li> </ul>
International projects	GIZ SDC JICA	<ul style="list-style-type: none"> <li>- providing funding for inputs and equipment</li> <li>- expertise and support for technology transfer</li> </ul>
Private sector	Uvs Food Company Мөнх ногоон тал (Ever Green Land LLC)	<ul style="list-style-type: none"> <li>- supplying inputs</li> <li>- organising training on farming practices</li> </ul>
Non-governmental organisations	Water Users Federation MWFA NAMAC	<ul style="list-style-type: none"> <li>- establishing natural resource management groups</li> <li>- organising training on farming techniques and organisation</li> <li>- increasing access to inputs</li> </ul>
Farmers associations and producer groups	Farmer cooperatives Association of seed producers NFBA	<ul style="list-style-type: none"> <li>- organising training on farming practices and organisation</li> <li>- providing consulting services</li> <li>- evaluating product quality</li> <li>- implementing national projects</li> </ul>
Source: Own data.		

## Annex 6: Advantages and challenges of agricultural cooperatives

**Table 6: Advantages and problems of agricultural cooperatives in the study region as indicated by the participants of a focus group discussion in Uvs Aimag.**

Advantages	Challenges
Benefitting from mutual help among members	Absence of collaborative intentions
Increasing bargaining power at the market	Lack of trust among and between members
Sharing physical resources, manual labour and information	Bad reputation of cooperatives due to stigmatisation and history
Participating in decision-making and profit sharing	Low commitment and group cohesion
Enjoying collaboration in social events and festivals	Impeding taxation law
	Lack of investment and financing
Source: Own data.	



## Annex 7: Ideas on how to strengthen horticultural cooperatives

Table 7: Ideas on how to strengthen horticultural cooperatives on different levels as indicated by the participants of a focus group discussion in Uvs Aimag.	
Implementation level	Activities
<b>Cooperatives</b>	<ul style="list-style-type: none"> <li>- Encourage passive members to participate more actively</li> <li>- Organise more training and invite experts to offer their expertise</li> <li>- Increase common property by asking long-time members to invest more in cooperative assets</li> <li>- Establish mixed-cooperatives</li> </ul>
<b>National and regional government</b>	<ul style="list-style-type: none"> <li>- Providing long-duration low-interest loans</li> <li>- Improve legal framework (e.g. taxation law)</li> <li>- Offer insurance against high production risks</li> <li>- Stop vegetable imports and support domestic production</li> <li>- Install measures against corruption</li> <li>- Foster investment in processing plants</li> <li>- Train extension agents on cooperative organisation</li> </ul>
<b>International projects</b>	<ul style="list-style-type: none"> <li>- Promote cooperative movements</li> <li>- Provide long-duration low-interest loans</li> <li>- Strengthen existing cooperative structures instead of breaking them apart by creating incentives to form new cooperatives to apply for funds</li> <li>- Focus on the development of a processing industry</li> <li>- Organise exchange with cooperatives from other countries and offer business trips for members abroad</li> </ul>
Source: Own data.	

## Annex 8: Protected areas and tourism regulations

Table 8: Protected area and tourism regulations.		
Category	Zoning/Types	Regulations relevant to tourism
Strictly Protected Areas	Pristine zone	Research (GoM, 1994, Art. 9)
	Conservation zone	Research (GoM, 1994, Art. 10)
	Limited use zone	<p>"5) Use of mineral water and other treatment and sanitation resources</p> <p>6) Ecotourism organised following designated routes and areas, according to appropriate procedures</p> <p>7) Use of accommodations constructed according to appropriate procedures and designated for temporary residence, camping, observation, research or investigation by travellers or other people with permission</p> <p>9) Worshipping natural sacred sites and conducting other traditional ceremonies" (GoM, 1994, Art. 11)</p>
National parks	Special zones	Research (GoM, 1994, Art. 15)
	Travel and tourism zones	<p>Regulations as for limited use zone of strictly protected areas; additionally:</p> <p>"fishing in designated areas" (GoM, 1994, Art. 16)</p>
	Limited use zones	<p>Regulations as for limited use zone of strictly protected areas; additionally:</p> <p>"3) Authorised construction of buildings for travellers and others, using approved proposals and plans</p> <p>4) Construction of roads and road stations following the appropriate procedures and using approved proposals and plans</p> <p>5) Support and maintenance of fields required for sport facilities and public activities" (GoM, 1994, Art. 17)</p> <p>Comment: "restrictions are significantly more lax, allowing commercial use of water and plants, mining practices, forestry, construction of buildings, and hunting activity" (Wurts and Kieryn, 2013, 8).</p>

<b>Nature reserves</b>	Ecological reserves Biological reserves Paleontological reserves Geological reserves Water reserves (No zoning/ zoning unclear)	<p>“Traditional household activities may be carried out in nature reserves provided they do not have a negative impact on the natural features, the condition and location of certain types of natural resources, population levels, and the reproduction of flora and fauna for which the reserve is under protection.” (GoM, 1994, Art. 21)</p> <p>“It is prohibited in nature reserves to engage in any activities for commercial purposes that change the natural original condition and which are likely to have negative environmental impacts such as the construction of buildings, the digging of land, the use of explosives, the exploration and mining of natural resources, the hunting and trapping of animals, or the harvest of wood and reeds.” (GoM, 1994, Art. 21)</p>
<b>Monuments</b>	Natural monuments Historical and cultural monuments (No zoning/ zoning unclear)	<p>“Within an area extending 0.1-3.0 km of natural or cultural and historical monuments, it is prohibited to construct buildings that degrade the view and scenery, to plough or dig land, to use explosives, to explore or mine natural resources, to touch, disturb or remove natural or cultural and historical relics, or conduct any other activities which might cause damage to them.” (GoM, 1994, Art. 24)</p>
Source: GoM, 1994; Wurts and Kiernyn, 2013.		

## Annex 9: Total overview of interview partners

Table 9: Total overview of interview partners				
Type	Citation code	Date	Place	Organisation, Position
Key informant interview	A1	27/06/2019	Berlin	Potsdam Institute for Climate Impact Research (PIK)
Key informant interview	A10	16/09/2019	Ulaanbaatar	Professor soil science
Key informant interview	A11	7/08/2019	Ulaanbaatar	Institute for Agroecology
Key informant interview	A2	12/08/2019	Khovd	Secondary School of Progress Khovd
Key informant interview	A3	16/08/2019	Khovd	Khovd University, Head of Department of Chemistry and Biology
Key informant interview	A4	20/08/2019	Khovd	Institute for Hydrology and Meteorology
Key informant interview	A5	29/08/2019	Ulaangom	Teacher for crop science, Polytechnical College
Key informant interview	A6	30/08/2019	Ulaangom	Institute for Hydrology and Meteorology
Key informant interview	A7	3/09/2019	Ulaangom	Institute of Plant and Agricultural Science
Key informant interview	A8	4/09/2019	Ulaangom	Teacher for Tourism at Ulaangom College

Key informant interview	A9	6/09/2019	Tarialan	Farmer (m, f)
Key informant interview	G1	5/08/2019	Ulaanbaatar	National Development Agency
Key informant interview	G10	19/08/2019	Munkhkhaikhan	Chairman of the government's office
Key informant interview	G11	20/08/2019	Munkhkhaikhan	Special Protected Area of Munkhkhairkhan
Key informant interview	G12	21/08/2019	Munkhkhaikhan	Bag governor
Key informant interview	G13	21/08/2019	Chandmani	Chairman of citizens' representatives meeting (Khural)
Key informant interview	G14	22/08/2019	Chandmani	Jargalant bag, Bag Governor
Key informant interview	G15	22/08/2019	Chandmani	Environmental Inspector
Key informant interview	G16	21/08/2019	Chandmani	Vice Soum Governor
Key informant interview	G17	21/08/2019	Chandmani	Khar Us National Park, Park Ranger
Key informant interview	G18	23/08/2019	Khovd	Khar Nuur-Khovd River Basin, Director
Key informant interview	G19	26/08/2019	Khovd	Department of Food and Agriculture, Chairman
Key informant interview	G2	11/09/2019	Ulaangom	Head of division

Key informant interview	G20	26/08/2019	Khovd	Department of Environment and Tourism
Key informant interview	G21	27/08/2019	Khovd	Khovd Branch of Mongolian Womens Federation
Key informant interview	G22	27/08/2019	Khovd	Department of Environment and Tourism, accountant
Key informant interview	G23	28/08/2019	Ulaangom	Chairperson of the Aimag Government
Key informant interview	G24	29/08/2019	Ulaangom	Chairman & Head of Department
Key informant interview	G25	29/08/2019	Ulaangom	Specialist for surface water resources and research
Key informant interview	G26	29/08/2019	Ulaangom	Department of Environment and Tourism, Uvs Aimag
Key informant interview	G27	29/08/2019	Ulaangom	Research Specialist, Strictly Protected Area, Uvs Aimag
Key informant interview	G28	29/08/2019	Ulaangom	Head of Labour and Employment, Department of Labour and Social Welfare
Key informant interview	G29	4/09/2019	Ulaangom	Head of Strictly Protected Agencies
Key informant interview	G3	7/08/2019	Ulaanbaatar	Ministry of Environment and Tourism
Key informant interview	G30	4/09/2019	Ulaangom	Sustainable Development Council
Key informant interview	G31	5/09/2019	Tarialan	Representative of the Citizens' Chamber

Key informant interview	G32	6/09/2019	Tarialan	Soum Governor
Key informant interview	G33	5/09/2019	Naranbulag	Farmer (m, f)
Key informant interview	G34	10/09/2019	Ulaangom	Tourism Specialist at Department of Environment and Tourism
Key informant interview	G35	30/09/2019	Ulaanbaatar	Director General, Department of tourism policy coordination
Key informant interview	G36	9/09/2019	Ulaangom	Ppecialist of Tourism at Uvs Lake Strictly Protected Area Agency
Key informant interview	G37	6/09/2019	Tarialan	Farmer, Bag Governor (m)
Key informant interview	G4	9/08/2019	Khovd	Department of Environment and Tourism
Key informant interview	G5	10/08/2019	Khovd	Department of Environment and Tourism
Key informant interview	G6	14/08/2019	Khovd	Department of Food and Agriculture, Chairman
Key informant interview	G7	16/08/2019	Khovd	Chairman Department of Development Investment & Development Policies
Key informant interview	G8	19/08/2019	Buyant	Soum governor
Key informant interview	G9	20/08/2019	Khovd	Department of Labour and Social Welfare office, Department of Operation and Monitoring
Key informant interview	I1	6/06/2019	Berlin	GIZ, SPACES

Key informant interview	I10	9/09/2019	Ulaangom	IMRI, GIZ
Key informant interview	I11	19/09/2019	Ulaanbaatar	IMRI, GIZ
Key informant interview	I12	19/09/2019	Ulaanbaatar	Programme Officers International Organization for Migration
Key informant interview	I13	1/05/2019	Ulaanbaatar	Eco Consult
Key informant interview	I14	29/05/2019	Ulaanbaatar	Former GIZ consultant
Key informant interview	I2	19/07/2019	Skype	IAK Consulting
Key informant interview	I3	5/08/2019	Ulaanbaatar	GIZ, IMRI
Key informant interview	I4	6/08/2019	Ulaanbaatar	GIZ, SPACES
Key informant interview	I5	8/08/2019	Ulaanbaatar	Swiss Agency for Development and Cooperation (SDC), National Programme Officer
Key informant interview	I6	14/08/2019	Khovd	Director of Western Mongolia Field Office of TNC
Key informant interview	I7	14/08/2019	Khovd	Director of WWF Altai Sayan field office
Key informant interview	I8	28/08/2019	Ulaangom	Division of Investment and Development Policy Planning
Key informant interview	I9	9/09/2019	Ulaangom	Local Project Coordinator WWF



Key informant interview	L1	11/08/2019	Buyant	Farmer (m)
Focus group discussion	L10	20/08/2019	Munk-hkhaikhan	Youth (f, m)
Key informant interview	L11	21/08/2019	Munk-hkhaikhan	Soum dweller (m, f)
Key informant interview	L12	21/08/2019	Munk-hkhaikhan	Soum dweller (m, f)
Key informant interview	L13	21/08/2019	Munk-hkhaikhan	Farmer (m, f)
Key informant interview	L14	22/08/2019	Chandmani	Teacher (f)
Key informant interview	L15	22/08/2019	Chandmani	Farmer (m)
Key informant interview	L16	22/08/2019	Chandmani	Farmer (m, f)
Key informant interview	L17	22/08/2019	Chandmani	Farmer (m)
Key informant interview	L18	22/08/2019	Chandmani	Soum dweller (m)
Key informant interview	L19	22/08/2019	Chandmani	Soum dweller (f)
Focus group discussion	L2	14/08/2019	Buyant	Norjin Haihan Bag Governor, Head of PUG Buyant, 3 local farmers
Key informant interview	L20	22/08/2019	Chandmani	Soum dweller (f)

Key informant interview	L21	5/09/2019	Tarialan	Soum government
Key informant interview	L22	15/08/2019	Buyant	Herder (f)
Key informant interview	L23	6/09/2019	Tarialan	Farmer (m, f)
Key informant interview	L24	5/09/2019	Naranbulag	Research Specialist, Strictly Protected Area, Uvs Aimag
Key informant interview	L25	5/09/2019	Naranbulag	Farmer (m, f)
Key informant interview	L26	5/09/2019	Naranbulag	Farmer (m, f)
Key informant interview	L27	6/09/2019	Naranbulag	Farmer (m, m)
Key informant interview	L28	6/09/2019	Naranbulag	Farmer (m)
Key informant interview	L29	6/09/2019	Naranbulag	Farmer (m, f)
Key informant interview	L3	15/08/2019	Buyant	Herder (f)
Stakeholder workshop	L30	10/09/2019	Ulaangom	Ulaangom College students (m, f)
Key informant interview	L31	10/09/2019	Ulaangom	Head of "Kharuus Alt" cooperative
Key informant interview	L32	11/09/2019	Ulaangom	Market vendor in Ulaangom

Key informant interview	L33	30/08/2019	Ulaangom	Farmer (m)
Key informant interview	L34	15/08/2019	Buyant	Herder (f)
Key informant interview	L4	16/08/2019	Khovd	Local market vendor (f)
Key informant interview	L5	17/08/2019	Khovd	Farmer (f)
Key informant interview	L6	19/08/2019	Buyant	Soum dweller (f)
Key informant interview	L7	19/08/2019	Buyant	Soum dweller (f)
Key informant interview	L8	20/08/2019	Khovd	Farmer and former teacher (f)
Key informant interview	L9	20/08/2019	Munk-hkhaikhan	Farmer (f)
Stakeholder workshop	O10	17/10/2019	Ulaanbaatar	Representatives Governmental and Non-Governmental Organisation
Key informant interview	O11	31/08/2019	Uureg Lake	Ger camp owner (m, f)
Key informant interview	O12	3/09/2019	Ulaangom	National Association of Mongolian Agriculture
Key informant interview	O13	4/09/2019	Ulaangom	Sustainable Development Council
Key informant interview	O14	5/09/2019	Tarialan	Community head and ger camp owner

Key informant interview	O15	6/09/2019	Tarialan	Manager of the crop & livestock cooperative Tarialan
Key informant interview	O16	9/09/2019	Ulaangom	Head of the Association
Stakeholder workshop	O17	10/09/2019	Ulaangom	Heads of their respective cooperatives
Key informant interview	O18	20/09/2019	Ulaanbaatar	Head of the National Association of Mongolian Agricultural Cooperatives
Key informant interview	O19	20/09/2019	Ulaanbaatar	President of the National Fruit and Berry Association
Key informant interview	O2	12/08/2019	Khovd	Pastoral user groups Buyant, Munkhkhairhan, Chadmani
Key informant interview	O2	15/08/2019	Khovd	Mongolian Tourism Association
Key informant interview	O20	20/09/2019	Ulaanbaatar	Mongolian Women Farmers Associationm, Inclusive and Sustainable Vegetable and Marketing Project (VEGI)
Key informant interview	O21	4/09/2019	Ulaangom	Youth federation
Key informant interview	O22	17/09/2019	Ulaangom	Water user federation Khovd
Key informant interview	O3	16/08/2019	Khovd	Head of Pastoral User Group Federation Khovd
Key informant interview	O4	20/08/2019	Munkhkhalkhan	Herder Group "Tsats undarga"
Key informant interview	O5	22/08/2019	Chandmani	Head of community-based conservation group

Focus group discussion	O6	23/08/2019	Chandmani	Ger camp manager
Key informant interview	O7	23/08/2019	Chandmani	Community group representatives
Key informant interview	O8	30/08/2019	Ulaangom	Head of the Women Association
Key informant interview	O9	30/08/2019	Ulaangom	Head of the Fruits and Berries Association (Uvs)
Key informant interview	P1	6/08/2019	Ulaanbaatar	360° Mongolia
Key informant interview	P10	24/09/2019	Ulaanbaatar	Indyguide
Key informant interview	P11	11/09/2019	Ulaangom	Ger camp owner
Key informant interview	P12	14/08/2019	Chandmani	Local residents (m, f)
Key informant interview	P13	22/09/2019	Ulaanbaatar	Hiking club Ulaanbaatar
Key informant interview	P2	16/08/2019	Khovd	Foreign tourist
Key informant interview	P3	20/08/2019	Khovd	Ger camp owner
Key informant interview	P4	20/08/2019	Khovd	Ger camp manager
Key informant interview	P5	4/09/2019	Ulaangom	Uvs Food Company

Key informant interview	P6	5/09/2019	Tarialan	Ger camp owner
Key informant interview	P7	6/09/2019	Naranbulag	Ger camp owner
Key informant interview	P8	9/09/2019	Ulaangom	Ger camp manager
Key informant interview	P9	18/09/2019	Ulaanbaatar	Mongolia Quest, Co-founder and Chief Operating Officer
Key informant interview	T1	15/08/2019	Khovd	Foreign tourist
Key informant interview	T10	1/09/2019	Ulaangom	Foreign tourist
Key informant interview	T11	1/09/2019	Ulaangom	Foreign tourist
Key informant interview	T12	1/10/2019	Ulaanbaatar	Mongol Rally
Key informant interview	T2	15/08/2019	Khovd	Foreign tourist
Key informant interview	T3	15/08/2019	Khovd	Foreign tourist
Key informant interview	T4	16/08/2019	Khovd	Foreign tourist
Key informant interview	T5	17/08/2019	Khovd	Foreign tourist
Key informant interview	T6	18/08/2019	Khovd	Foreign tourist

Key informant interview	T7	1/08/2019	Khovd	Foreign tourist
Key informant interview	T8	1/08/2019	Khovd	Foreign tourist
Key informant interview	T9	21/08/2019	Khovd	Foreign tourist
Source: Own illustration.				

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